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Thesis in international co-tutelle especially elaborated to obtain the degree of Doctor in Education, specialty of Teacher Education

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Abstract

A teacher's main professional concern is to enable, facilitate, and amplify learning of students. Hence, to teach is to generate and support the transfer of knowledge in an environment of learning. Nevertheless, as masters of student learning, teachers also need to take care of their own professional learning and development, especially with increased demands that modern societies place on educational outcomes. The aim of this research project is to understand the characteristics of teacher learning in innovative learning environments, in the wider context of educational reforms and developmental interventions. Theoretically, the phenomenon of teacher learning has been looked from the perspective of adult transformative learning, but also as an intersection of workplace, professional, and organisational learning. From the angle of workplace learning, the most influential theoretical concepts consider the quality of developmental and creative workplace learning, as well as the circumstances that enable expansive learning. Furthermore, the importance of knowledge of practice is discussed and so are the elements that support development of schools as learning organisations, such as contextual embeddedness of teacher learning within innovative learning environments, as well as within the wider scope of innovative educational reforms. This doctoral research was developed as an exploratory qualitative study of two European contexts, Hungarian and Portuguese. Collection of data consisted of school visits, interviews with teachers and principals, small focus groups, unstructured observations, as well as interviews with national educational experts and policy advisors. In order to analyse the collected empirical material, qualitative content analysis was applied and two exploratory cases were developed presenting four innovative schools in each of the two national contexts. Furthermore, specific categories of teacher work and learning were developed and presented in both Hungarian and Portuguese chapters, showcasing teachers' own perspectives as well as the acute importance of school leadership. The results point towards advanced levels of teacher learning when situated in innovative learning environments. Even though teachers reportedly spend more time advancing through innovative approaches, most of their experiences are rewarding in terms of the effect it has on their students and their own professional satisfaction. The learning they report is significantly transformative, creative and expansive, and there is a more frequent reliability on building functional and collaborative communities of practice, and an increased involvement in creating and sharing knowledge of practice. The analyses also suggest the complexity of schools being well attuned to capture innovations and modify them to fit the appropriate learning settings. The results are also discussed from the perspective of a wider contextual framework and the perspectives of educational policy as highly consequential when teacher learning and innovations are in question. Thus, the study concludes that teacher learning is indeed a multi-layered phenomenon and that, particularly in context of innovative learning environments, each layer holds a significant contribution. This research brings forward a substantial amount of new information on teacher learning in the context of innovation in two European countries, and offers a valid argument for devising a sound multi-layered and synchronised framework oriented towards advancing teacher learning and innovations.

Absztrakt

Egy tanár fő szakmai feladata elősegíteni, lehetővé tenni, valamint fokozni a tanítványai tanulását. A tanítás tehát a tanulási környezetben való tudás átadásának a létrehozása, támogatása. A tanárok mint a tanítás szakértői a saját szakmai fejlődésükkel, tanulásukkal is kell, hogy folgalkozzanak, főleg annak érdekében, hogy megfeleljenek a modern társadalmak elvárásaiknak, amik egyre nagyobb hangsúlyt fektetnek az oktatási eredményekre. Ennek a kutatásnak a célja megérteni az innovatív környezetben történő tanárok tanulásának a jellemzőit, figyelembe véve az oktatási reformok és fejlesztési beavatkozások kontextusát. Elméleti keretben a tanárok tanulása a felnőtt transzformatív tanulás szempontjából lett megközelítve, de azért a munkahelyi, szakmai és szervezeti tanulás szempontjából is. A munkahelyi tanulás szemszögéből, a legelterjedtebb elgondolkodások a fejlődési és a kreatív munkahelyi tanulás mínőségét vizsgálják, valamint a körülményeket amik az expanzív tanulást lehetővé teszik. Továbbá, a gyakorlat tudását is fejtegeti a tanulmány, ahogy azon elemeket is amik hozzájárulnak az iskolák tanulási szervezetekkénti fejlődéséhez, mint például a kontextuális beágyazást a tanári tanulásban innovatív környezetekben, de azért tágabb értelemben is, az innovatív oktatási reformok hatókörzetében. Ez a doktori tanulmány egy felderítő, kvalitatív kutatásként készült, két európai kontextusban, a magyarban, és a portugálban. Az adatok gyűjtése iskolai látogatásokból, interjúkból tanárokkal és iskolaigazgatókkal, kis fokúszcoportos beszélgetésekből, struktúrálatlan megfigyelésből, valamint interjúkból nemzeti oktatási szakértőkkel, tanácsadokkal, állt. Az összegyűjtött empirikus anyag elemzésében a kvalitatív tartalom analízis módszer lett alkalmazva, valamint két felderítő esettanulmány is készült, ezek mind a két ország kontextusában négy-négy iskolát mutatnak be. Konkrét tanári tanulást és munkát jellemző kategóriák be lettek mutatva mind a két ország fejezetében, ezek ábrázolják a tanárok saját szemszögét, ahogy az iskola vezetés akut fontosságát is. A kutatás eredményei utalnak fejlett tanári tanulás lehetőségeire innovatív tanulási környezetekben. Bár a tanárok saját bevallásuk szerint több időt töltenek az innovatív megközelítések kifejlesztésében, tapasztalataik hálásak, mind abból milyen hatással vannak tanulóikra, mind saját szakmai megelégedettség szempontjából is. Tanulásuk jellemzően transzformatív, kreatív és expanzív, valamint sokkal gyakrabban támaszkodik funkcionális és kollaboratív gyakorló közösségekben való részvételre, mivel kiemelt fontosságú a gyakorlatok kifejlesztése, megosztása. Az analízis egy fajta iskolák eseti komplexitására is utal, mivel azok képesek az innovációkat saját elvárásaiknak, szükségeiknek megfelelően megszabni. A tanulmány megvitatja az eredményeket egy tágabb kontextuális keret szögéből is, rámutatt arra, hogy az oktatási politika kiemelten fontos következményekkel bír amikor a tanárok tanulásáról és az innovációról van szó. A kutatás következtet arra, hogy a a tanárok tanulása egy többrétegű jelenség, és, hogy az innovatív tanulási környezetek szempontjából minden réteg jelentős fontosságu. Ez a kutatás rengeteg új információt ad a tanárok tanulásáról innovatív környezetekben a két európai országban, szilárd érveket biztosít egy stabíl, többrétegű, sinkronizált keret kifejlesztéséhez, aminek célja a tanárok tanulását és az innovációkat elősegíteni.

Resumo

A principal preocupação profissional de um professor é promover, facilitar e ampliar a aprendizagem dos seus alunos. Neste enquadramento, ensinar é gerar e apoiar a transferência de conhecimento num ambiente de aprendizagem. No entanto, enquanto mestres da aprendizagem dos seus alunos, os professores também precisam de cuidar do seu próprio desenvolvimento profissional, particularmente tendo em conta as exigências adicionais promovidas pelas sociedades modernas sobre as finalidades da educação. O objectivo deste projecto de investigação é compreender as características dos processos de aprendizagem dos professores em ambientes de aprendizagem inovadores, num contexto alargado de reformas educacionais e intervenções para o desenvolvimento. Teoricamente, o fenómeno da aprendizagem dos professores tem sido estudado a partir da perspetiva da formação transformativa de adultos, mas também como uma intersecção entre aprendizagem no contexto de trabalho, profissional e organizacional. A partir do ângulo da aprendizagem em contexto de trabalho, os conceitos teóricos mais influentes consideram a qualidade de um contexto criativo e desenvolvimentista, bem como as circunstâncias que facilitam a aprendizagem expansiva. Mais ainda, a importância do conhecimento sobre a prática é discutida, bem como os elementos que apoiam o desenvolvimento de escolas enquanto organizações aprendentes, tais como a incorporação da aprendizagem dos professores em contexto a partir de ambientes de aprendizagem inovadores, bem como a partir de um enquadramento mais lato de reformas educativas inovadoras. Esta investigação doutoral foi desenvolvida como um estudo qualitativo exploratório de dois contextos europeus, Húngaro e Português. Os dados foram recolhidos a partir de visitas a escolas, entrevistas com professores e diretores, entrevistas de grupo focal, observações não focadas, e ainda entrevistas com especialistas educativos a nível nacional e assessores políticos. Para analisar o material empírico recolhido foi feito uso de analise qualitativa de conteúdo tendo sido desenvolvidos dois casos exploratórios que apresentam quatro escolas inovadoras em cada um dos dois contextos nacionais. Foram desenvolvidas categorias específicas sobre o trabalho e a aprendizagem dos professores e apresentadas em capítulos sobre a Hungria e Portugal, ilustrando as perspetivas dos professores participantes, bem como a importância crítica das lideranças escolares. Os resultados apontam para níveis avançados de aprendizagem dos professores quando situados em ambientes de aprendizagem inovadores. Apesar dos professores relatarem que despendem mais tempo para avançar quando utilizam estratégias inovadoras, a maioria das suas experiências são recompensadoras em termos dos efeitos que têm nos seus estudantes e na sua satisfação profissional. A aprendizagem que eles relatam é significativamente transformativa, criativa e expansiva, havendo também com maior frequência fiabilidade na criação de comunidades de prática funcionais e colaborativas e um maior envolvimento na criação e partilha de conhecimentos sobre a prática. As análises também sugerem a complexidade das escolas para estarem bem sintonizadas para implementar e modificar inovações para se ajustarem aos cenários de aprendizagem apropriados. Os resultados também são discutidos a partir da perspetiva de um enquadramento contextual mais amplo e das perspetivas de política educacional como altamente consequentes quando a aprendizagem do professor e as inovações são o foco. Assim, o estudo conclui que a aprendizagem do professor é, de fato, um fenômeno de múltiplas camadas e que, particularmente no contexto de ambientes de aprendizagem inovadores, cada camada contém uma contribuição significativa. Esta pesquisa realça uma quantidade substancial de novas informações sobre a aprendizagem dos professores em contextos de inovação em dois países europeus, e oferece um argumento válido para a elaboração de um enquadramento multi-camadas sincronizado e orientado para a melhoria da aprendizagem de professores e da inovação.

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List of Acronyms

A-E – Área-Escola
CHEIR – Centre for Higher Education and Innovation
CLIL – Content and Language Integrated Learning
CPD – Continuous professional development
ECR – Elementary Curriculum Reorganisation
EDiTE – European Doctorate in Teacher Education
EFOP – Human Resource Development Operational Programme
ELTE – Eötvös Loránd University
ESR – Early Stage Researcher
EU – European Union
HEFOP – Human Resources Development Operational Programme
ICT – Internet and communication technologies
ILE – Innovative learning environment
IMPALA – Impact mechanisms of public education and development interventions
INOVA – The emergence and diffusion of educational innovations
NGO – Non-governmental organisation
NOIR – National Education Sector Innovation
OECD – Organisation for Economic Co-operation and Development
OECD/CERI – OECD's Centre for Educational Research and Innovation
PNPSE – National Plan for Educational Success
PPIP – Pilot Project for Pedagogical Innovation
SOLE – Self-Organised Learning Environment
SWOT – Strengths, weaknesses, opportunities and threats
TÁMOP – Social Renewal Operational Programme
TEIP -Priority Intervention Educational Areas
VET – Vocational education and training

1. Introduction

1.1 Background

The study that embarks here, *Teacher learning in innovative learning environments, in the context of educational reforms and development interventions*, is a research project under the framework of the European Doctorate in Teacher Education (EDiTE) which is an Innovative Training Network initiative of Marie Skłodowska Curie Action, funded through the European Horizon 2020 flagship project (Cervinkova & Kalman, 2016). As such this doctoral research project is part of a family of 15 interconnected studies across Europe, that jointly address the encompassing theme of *Transformative Teacher Learning for Better Student Learning in the Emerging European Context* and its individual components (Rasiński, Tóth, & Wagner, 2017). Furthermore, the research sits in the framework of *The Learning Teacher* which is a composition of three doctoral research projects connected to Eötvös Loránd University (ELTE) in Budapest, Hungary, and it is also part of the Centre for Higher Education and Innovation at the Faculty of Education and Psychology.

Being a European research project, this study is a direct effort to explore and reveal significant notions in how education as a whole, and school and teachers in particular, tackle their ever-growing challenges and use intelligent solutions to create better outcomes. As such, the study is strongly entwined with the overall EDiTE theme and contributes to each of the three pillars: transformative teacher learning, student better learning and the emerging European context.

Through exploring how certain working environments affect teachers' professional development, the study provides a strong examination of teacher learning patterns and outcomes. The most basic question asked through this research is how teachers learn when they are working in non-routine and highly stimulating conditions and why is this important in the light of education in Europe today. While drawing the attention on Hattie (2015) who argues that the most significant element that enhances effectiveness in education is reflected through the work of teachers, the study also takes into consideration previous research pointing out the high complexity of teacher learning and the subsequent change it brings along (Opfer & Pedder, 2011).

Effective teacher learning has been always mirrored by the student outcomes, in terms of their learning, their attitudes towards learning, as well as the values that implicitly get inherited from teachers' performance. As such, there is an invisible and everlasting thread that connects a teacher and a student, in multiple ways. While this research does not directly examine student outcomes, it does dive into the reasons for and the importance of teacher learning, one among which is the achievement of better student learning.

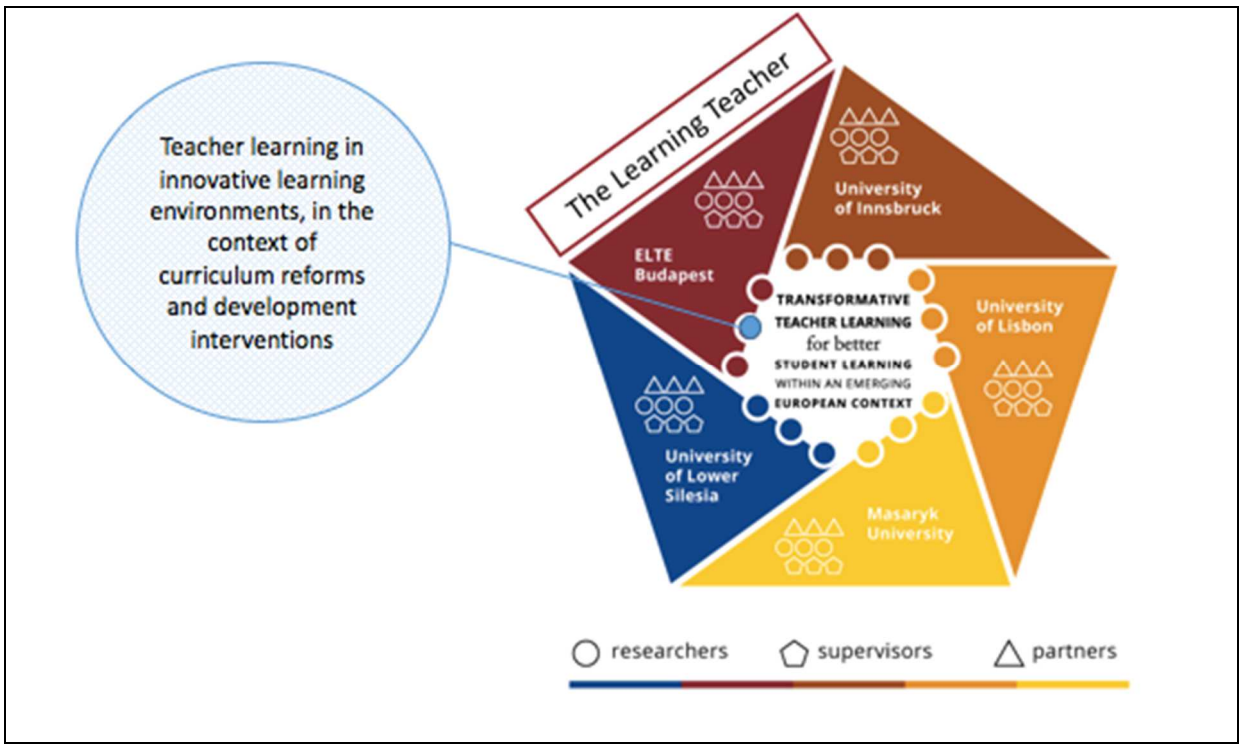
Finally, context plays a cornerstone role in this research, especially because innovation differs if observed in Far East Asia, United States, Africa or Europe. Even within the scope of Europe innovative schools are described with a different set of features, therefore the context is very clearly emphasised. Thus, the research explores the emerging European context(s) as both an idea of "presencing" the future (Scharmer, 2009) and as a reality for teachers and school leaders when discussing innovation.

In addition to this, the study on teacher learning in innovative learning environments is part of the framework specifically designed at the Eötvös Loránd University (ELTE). This specific ELTE research framework under the name *The Learning Teacher* embraces three research projects simultaneously done within a timeframe of three years. Thematically, next to the topic of this dissertation, there is a research focused on initial teacher learning in the context of teaching practice, and another one centred around teacher learning as compared with learning in other professions. Together, these three research attempts contribute to a rich plethora of new knowledge in contexts of teachers' practice and work by following a key question of "how teachers and student teachers learn about and for *effective pupil learning* while doing school based practice or performing their daily work in classrooms and school communities" (ELTE PPK, 2016, p. 6). Thus, *The Learning Teacher* is seen as a unique contribution to EDiTE framework, deliberating on practice and workplace learning from three distinctive perspectives.

As part of ELTE, it is important to mention that the study lies within the scope of a specific unit within the Education and Psychology department, named *Centre for Higher Education and Innovation* (CHEIR) and as part of this group, also shares ties with the project developed and implemented by this team, entitled *The emergence and diffusion of local innovations and their systematic impact in the education sector*.

Figure 1 below, illustrates how this study is placed in the greater EDiTE framework, as well as within the scope of ELTE. It is understood that positioning in ELTE directly means positioning within the CHEIR research group.

Figure 1: Graphic presentation of the EDiTE framework

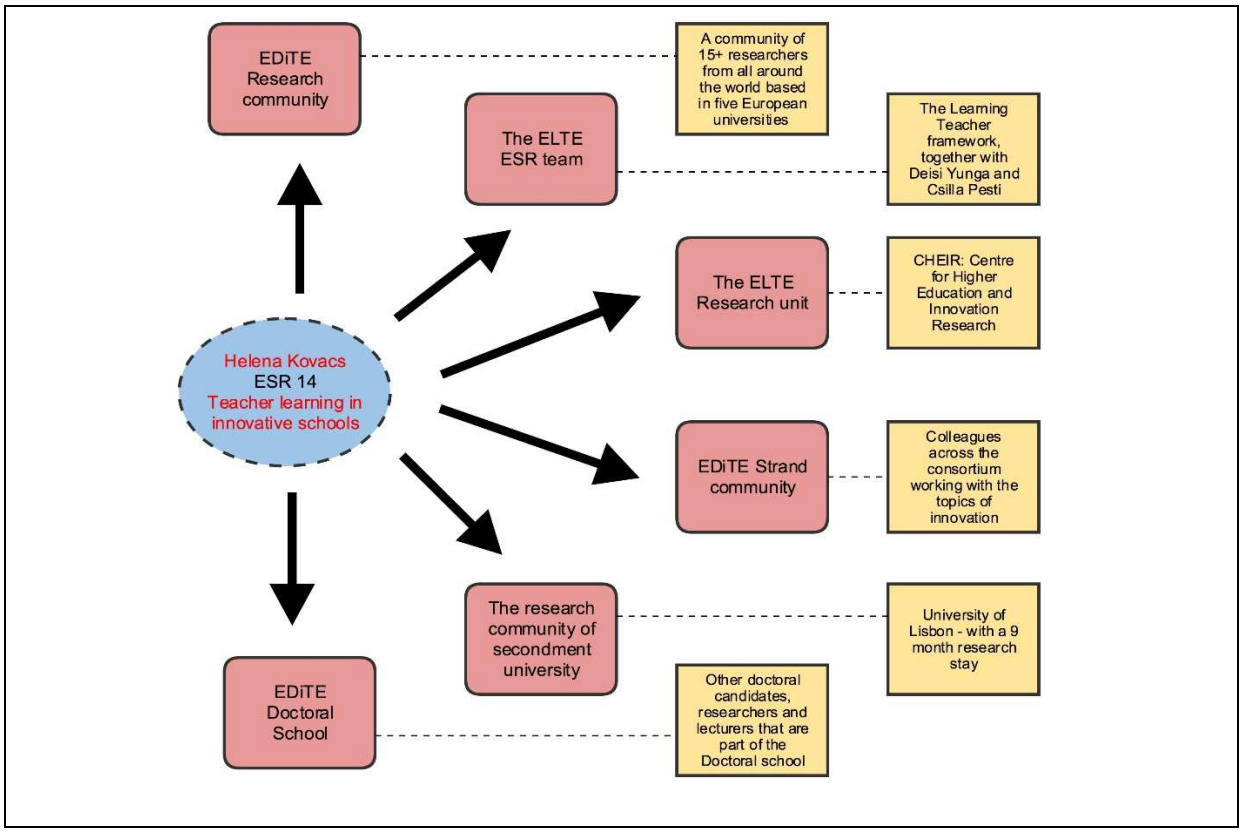


Source: EDiTE material

This background setting is important for the understanding of the overall capacities that have been invested into this research, including the work engagement, support and responsibilities towards the project, the academic community and wider society. Imperative of EDiTE for becoming the "leading network for teacher education" (*Teacher Education and Teacher Education Policies in the European Union*, 2014) had created a high demand for each of the 15 studies in its scope, and the gravity of this demand was particularly important for this study as it is the only one that explores innovative approaches.

The diversity of professional communities that surround this research is also presented in Figure 2, that provides further visual details. This scheme provides a more in-depth visualisation of the research efforts and its surrounding influences which all point to transparent ways this research has been shaped and developed. The wealth of professional communities speaks also to the fact that this research aspired to achieve the most comprehensive approach possible and generate a valuable output.

Figure 2: The diversity of professional communities



Source: author

Upon this note, the remaining of the introduction chapter illustrates the underlying problems that give the urgency for the study and provides justification into exploring the range of elements within.

1.2 Problem statement

Formal education system, and a school in particular, is the place where learning is meant to happen. While teachers dedicate most of their professional efforts for student learning, there is always a pending question whether and how much they invest into their own learning. This question resides in a level of complexity as the issues problematised here are not only whether an individual does something or not, but also how a context layered from the immediate teacher community to a national or transnational policy contributes to learning. This layering is briefly discussed here and more deeply questioned and elaborated in the rest of the dissertation.

1.2.1 Teacher learning

Learning is intrinsic to all living beings, humans included. Thus, teachers are no exception to this rule. Nevertheless, there are few issues that arise when it comes to teacher learning and

one such is that the social expectation that teachers are supposed to be experts in student learning and at some point this can block their own learning (Bakkenes, Vermunt, & Wubbels, 2010). Since skills, knowledge and attitudes for optimal teaching cannot be all fully developed at the preservice stage (Hammerness et al., 2007), understanding the necessity for continuous self-directed learning is one of the pillars of quality in education (Cochran-Smith & Demers, 2010).

Nevertheless, this is not the only issue circling teacher learning; research has proven that teaching profession comes with a high stake of tacit knowledge (Cochran-Smith & Lytle, 1999; Eraut, 2000) and complexities or work-based learning for teachers are not easily addressed by providing simple continuous professional development programmes (Opfer & Pedder, 2011). In fact, professional teaching challenges, as well as acquiring new strategies in teaching, come equally difficult for novice teachers and those experienced ones. A novice teacher might lack tacit teaching routine and experience, as well as s/he might not be prepared for classroom realities, thus overcoming these anxieties requires high readiness to learn. On the other side, for the seasoned, experienced teacher that already has a well-established routine, unlearning the practice that seems efficient in order to learn new strategies comes as difficult and emotionally painful leaving the teacher sometimes less effective than before (Hammerness et al., 2007). Quite often there is a lack of understanding for these professional learning traits.

Furthermore, teacher professional work and learning takes place in a school community, yet there is a lack of clarity what community of teachers exactly means and how it differs from a group of teachers sitting in a meeting room (Grossman, Wineburg, & Woolworth, 2001). The concept of learning organisation strongly emphasises on a vision of team work and team learning (Senge, 1990), although this might not always work. In many instances with a school setting it is relatively easy to understand that students come as diverse learners. However, it is a bit less common to see teachers as diverse learners as well, thus same rules might apply in professional learning as they apply to student learning.

Finally, teaching as profession is not exempted from the rest of the society, and the societal influences are rather significant when it comes to any profession, teaching included. Following the examples of countries with high rates of educational success, such as Finland and Singapore, provides evidence that investing in teachers to be satisfied and highly respected is a way to create a strong professional force in education (European Commission, 2018a). Kwo (2010, p. 332) mentions that “sustainable learning is a form of engaged living as moral beings”

but it goes without saying that teachers need to feel appreciated in societies and need to understand the stakes and demands, which are mutually created with the context that they operate in. This all is crowned with the challenges and benefits of working in innovative learning environments which brings both high demands and high satisfaction in terms of teacher learning and attitudes towards learning and education. Learning in places where educational innovation is nurtured brings out the potential of transformative learning for both teachers, students and the school communities (Kovacs, 2018).

1.2.2 Innovative learning environments

Polishing the shiny cover of innovation in education might reveal a lot of dust around it. Two large aspects of the problem are discussed here, and the first one deals with the very essence of what is innovation in education. In order to define the term it is important to step out of the field of education, and understand how innovation came to drive societies mainly through business and research (Godin, 2015). This makes it clear that innovation is not an occurrence that developed naturally from within education, but was borrowed and imported, thus in some cases making it alien to the core functioning of the schools. While innovation in education could be an argument for discussion, a notion of development in education and of education is a different topic. Therefore, to understand what is innovation in education is to comprehend whether there is a difference between innovation and development, and if so, in which way are they linked. This said, historically it is possible to pinpoint moments of educational development, for instance expanding elementary education to masses or integrating a more comprehensive curriculum. The question here is whether these can be called innovations, or should we define innovation at a stricter and sophisticated level.

Furthermore, the definition of innovation in education has rapidly evolved in the last few decades and this is evident when contrasting the discussions of educational innovation now and 25-30 years ago. In the not so distant past innovation in education almost exclusively meant introduction of Information and Communication Technologies (ICT) to the classrooms and digitalising taught contents using computers (Miller & Olson, 1994). At the moment, there is an important discussion in Europe, and worldwide, about what innovation actually means in educational setting. As something that is described as new (Ellis, 2017), there is a plurality of references to different educational aspects such as pedagogy, organisation, architecture, curriculum, technology, etc. Having said this, many countries such as Portugal (Kovacs & Tinoca, 2017) and Hungary (Fazekas, 2018; Halász, 2018) have opened up the possibilities for

schools to “choose” innovations most adequate to their local needs. For many schools that are not acquainted to steering their own agenda but rather rely on prescriptive checklists provided by national policymakers, the versatility of innovation in education created problems rather than solutions.

The discussion on innovation in education goes beyond this, as the essence of innovation is not to remain static and strictly formed in practice. It is the idea of making changes for a continuous improvement of a service and a product that is tied to competitive markets (O’Sullivan & Dooley, 2008). This is rather challenging to pass into the world of education, mainly because education has been rather static in its traditional structures for the last two centuries (Resnick, Goldman, Spillane, & Rangel, 2010). Additionally, innovation in a sense of a constant change and improvement opens a debate on measurement and in the true meaning of the word innovation, one set of indicators might not be enough to understand the scope or benefit and cost, thus might be limiting in terms of future school behaviours (OECD, 2015, 2017).

The other problem area that ought to be addressed here is the “challenge of innovation” for schools. Resnick et al (2010) elaborates that innovation is indeed a challenge for many educational institutions as they sit in a conservative world of education, in which the new cohorts of teachers are trained in provisions that are traditional and out of fashion by what is expected to be the school of 21st century. Furthermore, continuous professional development initiatives are in many cases designed as prescriptive set of skills which, in turn, fails to create professional learning communities and inspire innovation. In such occasions, innovation is seen as a burden with a heavy workload and without immediate benefits in terms of learning outcomes, or in many cases monetary and non-monetary incentives.

This said, innovation quite often meets a barrier when introduced to schools and teachers. While this is partly due to the lack of understanding of the necessity and / or the meaning of innovation, it is also partly due to the ways in which innovation reaches schools. In the already mentioned example of Portugal, Kovacs and Tinoca (2017) examine how the state failed in implementing ground-breaking school innovations in the past and the ways they are currently being proposed through involving a large variety of social stakeholders, making innovation more participatory and thus with more local ownership. This sheds light to the idea that school change that is triggered by innovation is not only an issue for schools, but it is one that needs to involve society at large. Halász (2018) and Fazekas (2018) provide ample evidence from two large national researches on how interventions at the national level influence the behaviour

of teachers at the school level, including developing new solutions for their classroom practices. This led to a development of a complex conceptual framework for understanding the nature of innovation in education sector.

Finally, and with all said, it is important to understand the nature of innovation is highly contextual, thus it varies between countries, but also between the individual schools. However, there is a common factor in studying innovation that this study tends to further investigate, and this factor is the learning potentials that innovative environments offer to everyone involved in it, and primarily to teachers. Thus, while still rigorously questioning the meaning innovation, the centrepiece of research intentions is placed to understanding the contributions of innovative environments to teacher learning.

1.2.3 Curriculum reforms and developmental interventions

Within the European context, the European Commission has a long record of recognising teacher profession as crucial for the evolution of national educational systems as well as implementation of measures that support social and economic development (European Commission, 2004). However, states are not always successful in finding effective ways that support teachers and schools, and according to Hattie (2015) such policies are rather politically attractive than addressing what is happening in the classroom. He adds that in some cases expensive interventions have little if any effect on student outcome and this he calls the politics of distraction in education (Hattie, 2015).

Indeed, the problem at stake here is that curricular reforms sometimes see only few years ahead and demand results almost immediately. While some reform outcomes might be visible early on, those that should matter – the student learning – need time and a robust and intelligent measuring approach. This is true especially when attempting to measure 21st century skills such as creativity, collaboration and innovation, as well as closing the existing social gaps.

Furthermore, educational reforms often focus on one element alone and in isolation, underestimating that schools are looked within a system of interconnected elements. Thus, the educational reform needs to understand the intricacies of the schools within a greater system and offer a comprehensive approaches and time for the change to happen (Mattila & Silander, 2015). Additionally, there needs to be a great understanding of how the schools implement reforms, and how these are locally modified in schools that are effective and successful (D. H. Hargreaves, 2003; McLaughlin, 1990; van den Akker et al., 2005). Importantly, as noted

before, Mattila and Silander (2015) call upon examining the web of different elements and players in order to see what makes schools function, and in order to make effective policy measures. These include largely the school leadership and the teachers as the workforce that carries out educational provisions (Cerna, 2013; MacBeath & Townsend, 2011; Nye, Konstantopoulos, & Hedges, 2004). Not by chance, educational research suggests that the quality of implementation of the curricular intervention will be best seen through how the teachers and students interact with it (Snyder, Bolin, & Zumwait, 1992). Next to this, overall school success through the ability of leadership to understand the developmental stage of the institution and adjust to the needs of it (Day et al., 2009).

Finally, looking from the perspective of developmental interventions that are designed as bottom-up initiatives and stem from individual schools, elements such as shared vision, team learning, personal mastery, mental models and systems thinking are of utmost importance in order for an institution, including a school, to be an effective learning organisation (Senge, 1990). Failure to see the complexity of an organisation and how it fits and interacts from within as well as with the surrounding, and by undermining the importance of continuous learning, is at the core of unsuccessful school level interventions.

The issues outlined in relation to this strand of the problem are, as noted, highly interconnected within a web of actors, of which schools as organisations are the main carriers of change. Yet, it is significant to bear in mind the contextual, political, social and historical elements that play their heavy roles in understanding the abovementioned problems.

1.3 The purpose of the study and the starting premises

This research has been developed as an exploratory study of a teacher learning phenomenon, in a specific context that is described as innovative learning environment, and that additionally explores the greater context of educational reforms and interventions. In this study the innovative learning environment is referred to a work environment or an innovative workplace that provides teachers with an opportunity to learn in a specific non-routine way. As such, the main purpose of the study is to provide insights along the aims and objectives of the study that inform the current academic research on teacher learning in innovative schools and serve as a stepping stone for further investigations.

In order to successfully fulfil all the tasks of this doctoral dissertation, the research endeavour considered three premises on its departure. These premises helped in effectively focusing the aims and research questions. Furthermore, they are tightly connected to the initial conceptualisation of the doctoral research and are based on findings two previous Hungarian research projects, Impala and Inova, have produced. As the first founding premise, this research started with considering that teacher learning is different in innovative learning environments in comparison to non-innovative traditional environments. Following this idea, the second premise points that innovations have a positive impact and can increase teacher learning making it different from "everyday learning". Thirdly, there are elements in the environment at the macro level that support development and sustainability of innovations and teacher learning.

While these three points could naturally be a topic of a separate research, in the current design they were taken as starting points mainly based on the already mentioned research results from two significant Hungarian projects. By taking these premises as starting assumptions, the research was able to further focus towards the core of its interests – teacher learning.

1.4 Research aims and research questions

The main goal of this study is to understand the phenomenon of teacher learning in innovative learning environments. This agenda lies at the heart of the research, thus, it is followed by objectives stated here:

- To enhance the understanding of the nature of teacher learning in innovative learning environments
- To shed light on the various aspects of innovative learning environments and how they support teacher learning
- To gain understanding of elements that support sustainability of innovation and teacher learning at the level of national policy and the level of developmental interventions

In order to fulfil the aims and objectives of this studious quest, a set of research questions were designed to follow each layer of the problem (micro, meso, macro) starting from the first and main one:

1. What are the characteristics of teacher learning and practice in innovative learning environments?

2. In what ways are innovative learning environments supporting and stimulating teacher learning?
3. What elements are necessary for developmental reforms and interventions in order to enable teacher learning in innovative learning environments?

The research questions, supported by the objectives and the problem statement, are taken as guides for the rest of the study. Essentially, together they create a holistic and complex picture that expands in the further sections providing many avenues for both academic and practice-driven discussion. Each of the questions will be deconstructed through the following parts of the dissertation, and they will ultimately be answered by analysing evidence, in order to construct the whole picture again into a meaningful set of recommendations and implications. Most importantly, they will all feed into the main concern of this research which deals with exploring the unique characteristics of teacher learning in innovative environments.

1.5 Organisation of the dissertation

This dissertation is organised in a way to capture all the required elements for pursuing a doctoral degree at the Eötvös Loránd University and University of Lisbon, and also to support a respective presentation of research work done within the scopes of *Transformative teacher learning for better student learning in the emerging European context*, the *Learning Teacher programme* and the individual research on *teacher learning in innovative learning environments.*

The first part, therefore, presents a thorough literature review on main components of this study. It encompasses literature on learning as a human activity, as well as learning from the workplace and organisational aspects. It further incorporates readings on organisational aspects of innovative schools, incorporating an important segment of leadership. Next to this, a contemporary discussion on innovation in education includes both understanding of how innovation came to matter in school lives across the globe, as well as shedding light into the intricacies of developing the definition that suits the field of education. The very central topic of teacher learning is described through a strong theoretical underpinning that reveals the most significant aspect of teacher learning at individual and community levels. This also involves the notions of school development and schools as learning organisations. In addition, the chapter explores curriculum reforms and education development interventions and how they interplay with innovation at the school level and teacher learning.

The second part of the dissertation provides insights into the research design and methodology that was used during the study. It provides scientific theoretical fundamentals, along with insights into the choice of the qualitative research approach and the use of a nested case study method. This part also reveals information on data collection procedures, participants and data analysis. Importantly, an outline on ethical considerations is provided in this section of the dissertation.

The third part offers a presentation on findings and results, illustrating the two case studies: Hungary and Portugal. In providing these illustrations of the two contexts, the readers have an opportunity to look at the data structured in a nested way examining the topic from different angles and dimensions. The case studies provide the first level of analysis of the phenomenon of teacher learning as explored at the country level and through selected innovative schools.

The fourth part is dedicated to discussion and analysis that combines the previous parts, and provides a generated overview of the knowledge that has been obtained from the entire investigation. Two case studies are looked at in an accumulative perspective providing an understanding of the topic in a more generic way. In deliberating the discussion, a notice on teacher learning as a comprehensive phenomenon is emphasised and three layers of the analytical framework are separately and jointly considered. Furthermore, the chapter offers lessons learnt for practitioners and schools, recommendations for policymakers and implication for future research at the end.

The final part of the dissertation outlines conclusions in form of a summary of all the presented parts of this doctoral dissertation.

2. Theoretical perspectives

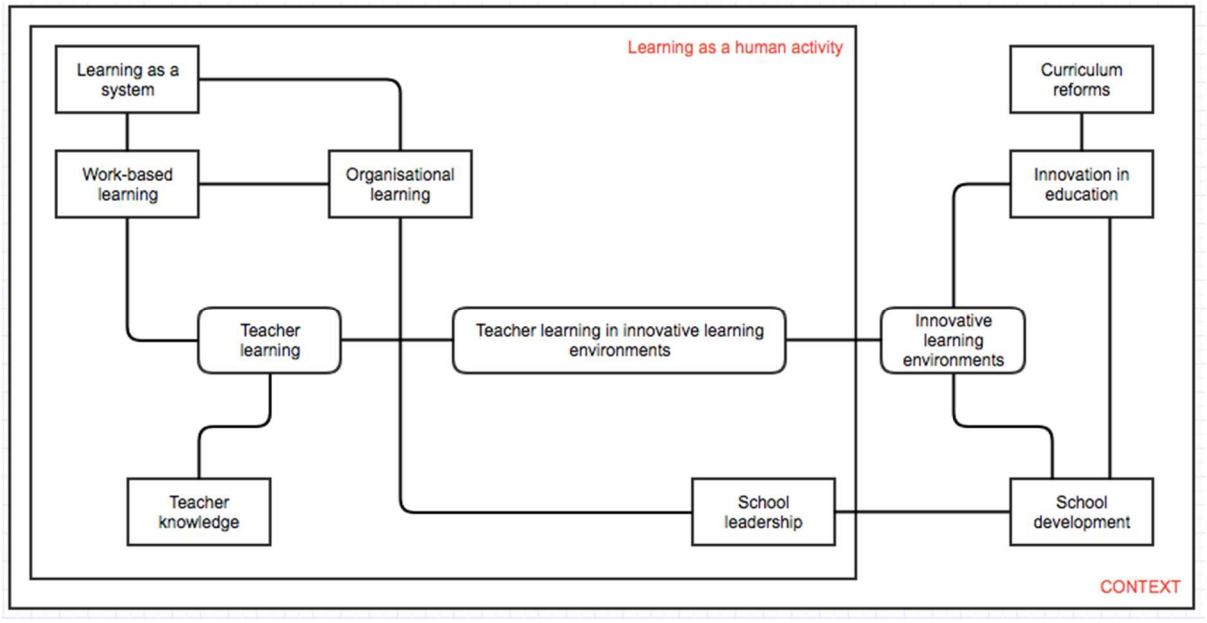
2.1 The scope and the connections

> "Learning is a new form of labour and the concept of learning is applied as a lens through which organisational life and work are interpreted. Learning is the daily ongoing process that is interwoven in and inseparably connected to the daily processes of work" (Antonacopoulou, 2006).

In this chapter, the main concepts, arguments and theoretical elements are explored and discussed with an aim to shed light at the current state of the play in international literature and provide a base to the further analyses. The study of teacher learning in innovative learning environments is a complex one, thus this chapter attempts to deconstruct the complexity behind it and, at the end, construct it back together in order to use it for the further analysis.

This said, the literature overview entails a plethora of interconnected thematic areas that have to be referenced in order to achieve a robust holistic outline. To assist in displaying the connections and lay out main thematic outlines, Figure 3 provides a visual scheme that is further explained below.

Figure 3: Map of theoretic fields and scope of the research



Source: author

The above figure visualises the scope and the disposition of the thematic areas and theoretical fields that need to be taken into consideration when approaching this research topic of teacher learning in innovative schools.

As illustrated by the figure, teacher learning is not a standalone theme but an embedded phenomenon that has different layers. Starting from the upper left corner, the very first layer is understanding learning as an activity, interaction, and a transformative experience. Along with the notions of lifelong learning further categorisation of the theoretical scopes of teacher learning leads to a unique type of learning recognised as both work-based learning and professional learning. These two theoretical fields will provide an essential input to understanding basic components, which will be additionally justified with the literature that specifically focuses on teacher learning.

In order to bridge the topics of teacher learning and innovative learning environments, informative aspects of the field of organisational learning will be taken as the cornerstone. In addition to this, innovative learning environment, even as a standalone thematic area, does connect to other essential fields. Primarily, it is necessary to have a basic overview of school development and school efficiency literature with all accompanying elements. This is typically also intertwined with the already mentioned organisational learning as one of the adaptive capacities of schools that provides innovative solutions to educational problems. Finally, connection is furthermore made with the aspect of innovation in education as a larger field that houses both theories on curricular reforms and developmental interventions. This is also the element that will provide contextual understanding for the study.

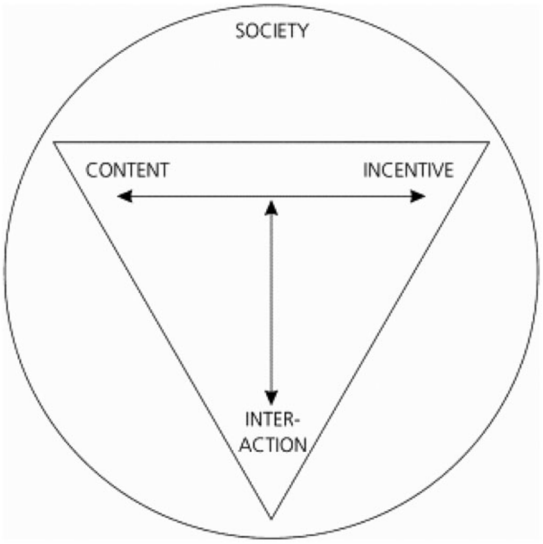
In the following text, this theoretical scheme is the map that connects all fields together and provides an overall logic.

2.2 Contemporary understanding of learning as a complex social science

In order to gain an insight into the field of learning as a scientific discipline, it is important to understand that historically, learning is both old and young. As such, the topic of learning only appeared as a self-standing theoretical subject after separating from psychology and with the emergence of behaviourism. Prior to this it was associated with philosophy and religion, as was much of the educational science. Yet, regardless of this divorce, bonds between learning and fields of psychology, neurology and, quite naturally, education science, hint of learning being a strong multidimensional field of study. The earlier theories and learning concepts (De Corte, 2010) gave birth to some of the contemporary points of view on learning, which more than ever tend to approach learning in a coherent and comprehensive manner.

This being said, one such approach was developed by Knud Illeris (2015) who suggested that "learning implied a subjective and positive connection between the learner's objective interests and subjective motivation and the learning content, which always includes a cognitive, an emotional and a social dimension" (Illeris, 2015, p. 32). In his attempt to develop one single broad theory that will accurately capture different types, forms and aspects of learning, Illeris has closely consulted the works of Dewey, Kolb, Schön and Mezirow. Thus, in order to set the base for his theory, Illeris approached learning as "any process that in living organisms leads to permanent capacity change and which is not solely due to biological maturation or ageing" (Illeris, 2009). In this sense, learning is seen as an extensive complicated set of processes that depend on several factors, including biological predisposition, internal conditions and external factors and influences. To further illustrate these processes of learning, Illeris proposed a learning triangle (Figure 4) – a model that depicts a mutual influence between three core factors.

Figure 4: The concept of human learning



Source: Illeris (2009)

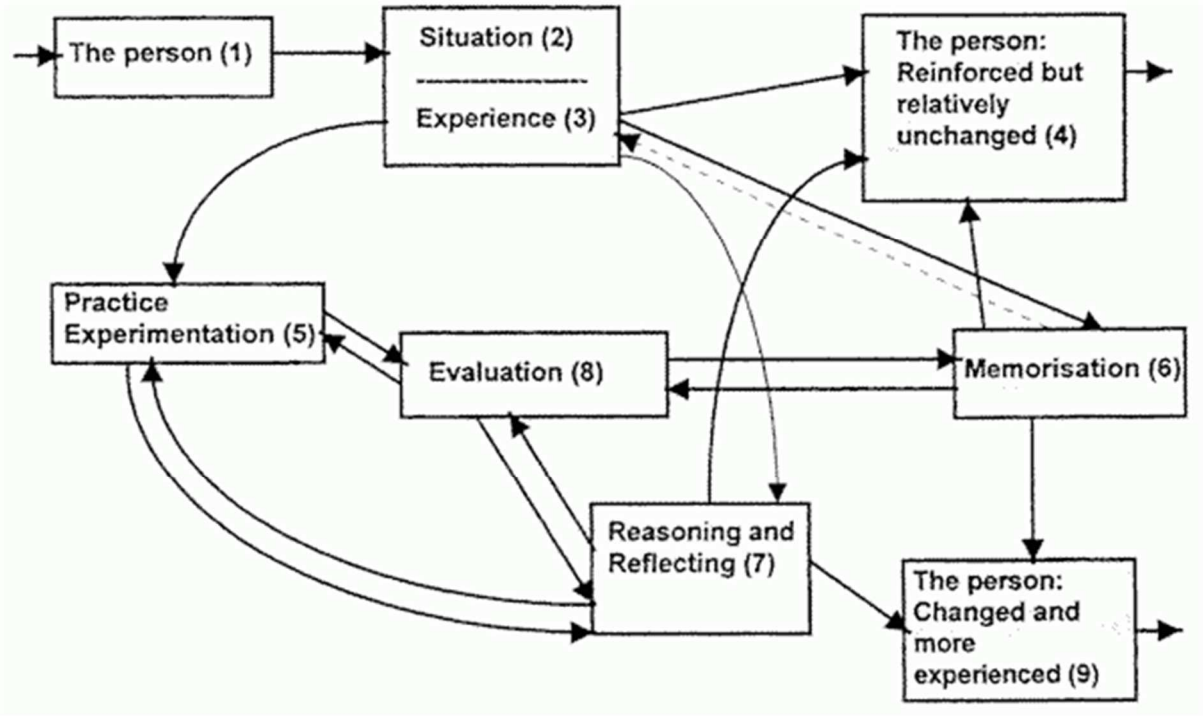
These three dimensions of learning inevitably include the aspect of being embedded into specifics of a society, in its macro and micro-levels (Illeris, 2009, 2015). The vertical double arrow presents the interaction between the person and their environment, while the horizontal signifies the process of internal acquisition of incentive and the content. Finally, in order to successfully utilise the learning triangle, the following definition of learning was proposed:

> The interaction process between the learner and the environment provides the learner with some input, which may or may not be absorbed by the learner through an acquisition process. When absorbed, the input is connected to the results of subjectively relevant prior learning and thereby forms the learning outcome, which is always individual, and influenced and sometimes distorted or misunderstood by the learner (Illeris, 2015, p. 35).

In this definition, Illeris tries to marry the cognitivist and the constructivist approaches to learning, and further acknowledge the important element of emotions and learning barriers. Similar opinions of cognition and emotion working in tandem, as well as of the interactions of social and cultural contexts within which people learn was noted by neuroscientists pointing out that individuals learn differently according to their maturity (Hinton & Fischer, 2010). Furthermore, it is necessary to stress that even though emotions play a critical role in the process, learning is not always connected to direct motivation or to positive sentiments but happens also in situations of hardship and stress (Hinton & Fischer, 2010; Illeris, 2015).

This understanding implies that learning is an inherent human characteristic that happens both intentionally and in an uninvited manner, as well as in variety of social situations. Peter Jarvis (2006) notes that human learning is "a complex set of human processes that are in some ways extremely difficult to understand" (p. 4). As such Jarvis confronted the simplicity of the Kolb's learning cycle by proposing a more elaborate process. The main issue with Kolb's cycle is that it provides a singular and simplified pattern of the learning process where concrete experience leads to reflective observation that then leads to abstract conceptualisation and ends with active experimentation, and this cycle can then be repeated. In Jarvis' conceptualisation of learning process proposed in 1987, he notes that situational circumstances and/or experience may lead to different outcomes that become interconnected and hold a potential of multiple other processes and outcomes. Thus, it is not necessary that all processes end with a favourable outcome for learning, as these can be complex and undulating, as it is seen in Figure 5.

Figure 5: Conceptualisation of the learning process



Source: Jarvis (2006)

It is here that the notion of *The person: Changed and more experienced* comes alive. The notion of 'change' connects to the idea of transformation and in Jarvis' understanding of the learning as a transformative function, the person is changed in the world in three different ways. Firstly, it is by placing new meanings and transforming ones that existed before; secondly, by purposefully attending the transformation of self through a combination of new knowledge, skills, attitudes, emotions and values; and lastly, the transformation seen as the person holding more experience and intelligence of situations, thus, having the prerequisite of handling new situations with more ease (Jarvis, 2006). Thus, the definition that Jarvis settles for proposes that:

> Human learning is the combination of processes throughout a lifetime whereby the whole person – body (generic, physical and biological) and mind (knowledge, skills, attitudes, values, emotions, beliefs and senses) – experience social situations, the perceived content of which is then transformed cognitively, emotively or practically (or through any combination) and integrated into the individual person's biography resulting in a continual changing (or more experienced) person (Jarvis, 2009, p. 25).

Jarvis approaches learning in a holistic manner as a change that affects the body and the mind and occurs in situations of disjunction which can be simply explained as a moment of wonder or an unexpected occurrence. This immediately raises notions of the role of learning in identity formation, which becomes an inseparable part of the knowledge, skills and competence

development. Other authors have had similar notices about learning, and in particular, Ettiene Wenger (2009) who advocated for a "social theory of learning" with an inventory of four different components, visible in Figure 6.

Figure 6: Social theory of learning

Source: Wenger (2009)

As presented in Figure 6, Wenger (2009, p. 211) approached learning as an activity of social participation with four different outcomes. With this in mind, Wenger explains learning as meaning or the way to develop the ability to experiencing life and the world as meaningful, but also as an identity which ventures in developing personal histories of becoming. He also defines learning as a practice that gives frameworks for actions and creates shared historical and social resources, and finally as a community where learning ties up to notions of belonging. The notion of the four elements being closely interconnected has been pointed out by the author himself, together with the observation that the lines between the different sections (e.g. community and identity) are rather blurred, which remained the greatest critique of this approach.

The presentation of the contemporary learning theory provides an understanding of complexity of the processes and outcomes of the learning activity. Nevertheless, in many ways learning today is still perceived from the old cognitivist approach in which knowledge is cognitively stored in a shape of symbols and learning is a process of connecting these symbols in a meaningful way. Cognitive psychologists believed that it is not only the collection of external stimuli that support people to develop and learn but rather the internal mental processes that

happen as a response to a specific input. This determined the basis of cognitivist learning theory:

> Learning is seen as the acquisition of knowledge: the learner is an information-processor who absorbs information, performs cognitive operations on it and stores it in memory (De Corte, 2010, p. 39).

One of the most profound thinkers among the cognitive scientists was Jean Piaget. His work within the domains of developmental psychology brought great implications on how learning was understood. Nevertheless, the critics of cognitive theory pointed out that, similar to behaviourism, cognitivism remained within the same input-process-output model of learning. Thus, the shift from cognitivism towards social constructivism started strongly to point out the importance of the social surroundings in one's learning. This school of thinkers was possibly best represented by a Soviet psychologist Lev Vygotsky who argued that learning is almost entirely a situated process which happens through influences of social interactions. According to him, learners construct their knowledge by absorbing information from their immediate environments. Therefore, Vygotsky constructed his theory of the Zone of Proximal Development (Tokuhama-Espinosa, 2017). The Zone of Proximal Development brought an understanding that there are 'zones' which follow the human development and learning, starting from the very intimate which a person can attain without assistance, then emerging to a more social zone which is described as learning that one gains through the help of others in the surrounding. Finally, the last zone is the one that cannot be reached. For Vygotsky, problem-solving was the way of acquiring knowledge in which the social environment, and in particular the language as an important feature of human socialisation, plays the most crucial role.

Rapid scientific discoveries that considered children's learning were further taken up by Albert Bandura, who was greatly known as one of the founders of the Social Learning Theory. Bandura's experiments, especially the Bobo doll experiment, brought forth the idea that modelling (learning as observation of role models) shapes children behaviour in both positive and negative ways. Further breakthroughs in the development of the field of metacognition and the theory of multiple intelligences opened up the discussion around different aspects of learning that support different kinds of knowledge. Notably, Gardner (2011) proposed the idea that humans have eight types of intelligences (verbal-linguistic, visual-spatial, logical-mathematical, kinaesthetic, musical, naturalist, interpersonal and intrapersonal), hence

purposeful social and cognitive stimuli are necessary to help leverage strengths and develop the weaknesses.

As one of the final considerations that relates to understanding learning as a comprehensive human activity, Illeris acknowledges that the input created from the interaction between the individual and the environment might also not be absorbed at all. Furthermore, in the occasion when that is achieved, the output created by new learning might be distorted in a way. Illeris (2015) calls these situations learning barriers, and distinguishes three such different barriers:

- Mislearning
- Learning defence
- Learning resistance

According to this, mislearning follows a pattern of lack of understanding of the content, as well as the lack of concentration and conditions related to the individual's prior learning. Things might be unclear for a wide array of reasons and thus get perceived in a distorted way causing a sort of a learning mistake. And while in the case of mislearning, the issue lies with the content, when it comes to learning defence – the focus of distortion is related to the incentive. In this case the learner is likely to reject following a defence mechanism that is determined by the learner's conflicting understanding of a matter or ambivalence towards it. Finally, learning resistance is a distortion that connects to the interaction dimension of Illeris' learning triangle. Learning resistance commonly happens in an interaction that is unfavourable or unwanted, as well as when the learner's value system gets pressed beyond tolerable boundaries due to particular personal dispositions, maturity of the learner, contested learning spaces and unfavourable societal conditions (Illeris, 2015).

Having it briefly outlined, this introduction to learning as it happens among humans will help in further exploration of processes that take place among and between teachers. It is important to stress that learning indeed is an interaction embedded in a specific surrounding and can have the characteristic of being an unconscious outcome for the learner. Equally, the emotional state of the learner, the optimality of their cognition and the overall value system employed in times of learning is determinant in processing learning output, regardless of its content.

2.2.1 Transformative learning

Transformative learning is the cornerstone for this research as it is framed by the overarching

theme *The transformative teacher learning for better student learning in emerging European context* (Cervinkova & Kalman, 2016; Rasiński et al., 2017). Furthermore, this element is of utmost relevance for the topic of teacher learning in innovative environments, as it relates to the very essence of innovation as a novelty and the assumption of change. The connection lies in the core of both transformative learning and innovation-infused learning and this is the notion of 'meaningful perspective' (Mezirow, 2006). Mezirow (1978) pioneered the term transformative learning as he observed the power of life change among women who returned to studying after being away for some time, and has grounded his findings using the dichotomy of Habermas' learning types, as instrumental and communicative. The prior, instrumental learning, is used for mastering skills, thus it is hypothetical-deductive, while communicative learning provides understandings of value and truth and therefore it is analogical-abductive (Mezirow, 2009). Yet, another crucial element that formed the idea of transformative learning is that adult learners need a different set of preconditions in comparison to young learners in schools. In his own words:

> Transformative learning is defined as the process by which we transform problematic frames of reference (mindsets, habits of mind, meaning perspectives) – sets of assumption and expectation – to make them more inclusive, discriminating, open, reflective and emotionally able to change (Mezirow, 2009, p. 92).

For Mezirow, the frame of reference is the essence of human cognition that gives meaning to one's existence and it is structured by culture and language. The theoretical stand on the transformative learning therefore involves both instrumental and communicative reasoning and "[t]ransformative learning is an adult dimension of reason assessment involving the validation and reformulation of meaning structures" (Mezirow, 2009, p. 93).

Illeris (2009) defines four different types of learning among which the highest complexity and transformability is the one that is often explained as transformative using Mezirow's definition and as expansive using the definition of Irjö Engeström (1987). This type surpasses the levels when learning is cumulative and mechanical, assimilative, and goes beyond the translucent learning through which existing schemes are broken down in order to connect the gained new knowledge in new situations and realities. The transformative and expansive learning urges personality changes and the change in the organisation of self, and as a process it demands a lot of mental energy and sometimes a state of crisis after which the learner typically will feel a relief (Illeris, 2009). Yet, there is a distinction between transformative and expansive learning, as in the case of the first the emphasis is rather placed on the learner while in the case of the

latter, attention falls on the task. While these two types of learning are both at the elevated level of cognition, expansive learning is not necessarily focused on transformative development of the learner but the learner's capacity to solve a complex problem which does not have a pre-fixed solution.

Transformative learning is essential in this research, but it also points out a debate that in order for something to be transformed it first needs to be formed (Kegan, 2009). In this body of work, the first dilemma is discussed as an idea of workplace learning and organisational learning, where the learning of the professionals is entangled with the structures, challenges and opportunities of specific working settings. Therefore, the form is no longer only referred to as individual, but also communal, organisational, and perhaps even societal.

2.3 Fundamentals of work-based learning

The notion of teacher learning is embedded into schools as this type of learning is observed as professional work-based learning. Similar to comprehensive understanding of learning, work-based learning theories start with an acknowledgement that learning is not restricted to what is done in schools and to what is taught in classes during one's education. In particular, work-based learning focuses on learning that appears while working, as well as on learning that is an outcome of working engagement (Eraut, 2007; Lave & Wenger, 1991). This sort of interaction that happens in the workplace can be systematically setup to support learning but, at the same time, it can also be very chaotic and unstructured.

The science that covers learning at work has been interchangeably called workplace learning, work-based learning, learning in the workplace and learning at work (Elkjaer & Wahlgren, 2006). Regardless of the specific term, academics agree that all of these essentially explore the phenomenon of individual adult learning while engaged in a working setting. Elkjaer & Wahlgren (2006) note that in comparison to the formal learning setting, work-based learning is more than just physical transfer from a school to a workplace and regards a move from a behaviourist learning paradigm towards learning that is owned by the learner. They argue that "when learning is connected to workplaces, learning is connected to work-related actions and the performance of employees. This is shown either in routinization of practice or in the form of reflection on actions related to a practice" (Elkjaer & Wahlgren, 2006, p. 24), adding that this type of learning involves a high level of hidden and tacit knowledge. Ellström (2001) points out the importance of work-based learning as a way for enhancing productivity, innovation and competitiveness, as well as for reducing stress and developing healthier working conditions.

Yet, he argues for a difference between adaptive and development learning when discussing the workplace learning taxonomy. The starting point is the character of the working-learning situation which is a topic that will be elaborated further in the later chapter. Looking from the perspective of adoptive and developmental levels of learning, the following Table 1 presents Ellstörm's taxonomy.

Table 1: Levels of learning as a function of the scope of action in different aspects of work-learning environment

Aspects of the Work-Learning situation	**Adaptive Learning**		**Developmental Learning**	
	Reproductive	Productive, Type I	Productive, Type II	Creative
Tasks	Given	Given	Given	Not given
Methods	Given	Given	Not given	Not given
Results	Given	Not given	Not given	Not given

Source: Ellström (2001)

These types of learning at work are not mutually exclusive but rather complementary. The main distinction for the two developmental types (productive type II and creative) is that they often occur in situations when the learners "encounter novel or unfamiliar situations for which no rules or procedural knowledge (know-how) are available from previous experience" (Ellström, 2001, p. 424). The added complexity to the creative type of learning is that the learner uses her/his own authority and is required also to define the rules and conditions. It will be reaffirmed in the later text as well that due to the complexity of the work that a professional undertakes, it is important to understand that all the forms of learning are equally needed, since on-job effectiveness comes from a balanced routine and non-routine work. Thus, the quality of respond rests on the professional's level of competence and autonomy over evaluating the situation and the required task or problem (Ellström, 2001).

Work related professional learning is tied with the notions of professional knowledge, and this type of knowledge is in large part tacit and implicit (Eraut, 2007), based on action and reflection (Schön, 1992), and is constructed through engaging with problem solving activities (Høyrup, 2006).

In order to classify and categorise work-based learning, Eraut (2007) proposed a typology of learning at work constructed on the single fact whether the primary goals of the activity at work

are purely oriented towards learning, or if learning comes as a side-effect of working. Eraut named this as a *typology of early career learning* which is presented in Figure 7.

Figure 7: Typology of early career learning

Work Processes with learning as a by-product	**Learning Activities** located within work or learning processes	**Learning Processes** at or near the workplace
Participation in group processes	Asking questions	Being supervised
Working alongside others	Getting information	Being coached
Consultation	Locating resource people	Being mentored
Tackling challenging tasks and roles	Listening and observing	Shadowing
Problem solving	Reflecting	Visiting other sites
Trying things out	Learning from mistakes	Conferences
Consolidating, extending and refining skills	Giving and receiving feedback	Short courses
Working with clients	Use of mediating artifacts	Working for a qualification
		Independent study

Source: Eraut (2007)

As presented in the table above, there are "regular" work processes that contain learning as a by-product, intentionally or more often unintentionally. The second column looks at learning activities that are located within the work setting, and most of the times these are very conscious actions that can support efficient delivery of the work. Lastly, and arguably the most structured, formal activities are placed in the third column titled learning processes. These are the undertakings that actively support learning and are in fact aimed to enhance one's capacities for a more efficient delivery of work.

Finally, as noted in the earlier text, learning also depends on a number of factors some of which are intrinsic and some that are external. Based on that, as well as on some of Eraut's (2007) research, significant factors in workplace learning include confidence, challenges and the ability to handle challenges successfully, as well as value of work, support and trust, and motivation and commitment. These are interlinked in a fragile way; thus, one might easily impact the other, and altogether influence the work performance, learning outcomes, and future aptitude towards new learning. These issues will be further explored in the section below that specifically deals with the topic of teacher learning.

By looking at the essential concepts of work-based learning it becomes evident that there is a common social structure that holds it together. Lave and Wenger (1991) were committed in arguing that work-based learning is in all its senses a type of situated learning, meaning that it

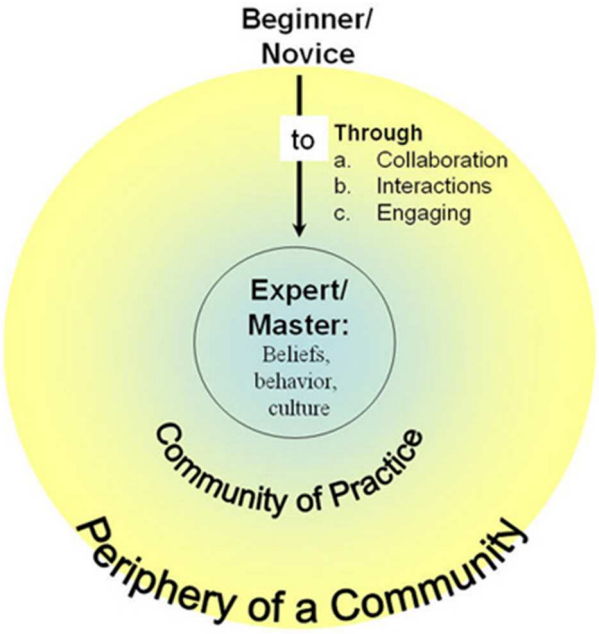
cannot be entirely provided through a theoretical framework. Whereas education can equip a person with a large quantity of knowledge about their future work, only by actually engaging into the exact working setting, the person can really learn (how to work). This kind of knowledge is most frequently highly tacit and implicit, often informed by a spectrum of small, invisible, practical tasks, and always heavily enriched by the working culture of the organisation (Eraut, 2007; Lave & Wenger, 1991). Learning within such a dynamic structure that heavily relies on the people involved is what is commonly called *communities of practice*. Explained with exact words:

> Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (Etienne Wenger, McDermott, & Snyder, 2002, p. 5).

Furthermore, Lave and Wenger explored how newcomers integrate into the workplaces and this brought forth a concept called *legitimate peripheral participation*. The researcher duo studied how newcomers coped with the new environments and pursued paths to mastery through apprenticeship processes. While originally legitimate peripheral participation looked into understanding how these processes of learning happen in occupations that are not covered by the formal training, many of the aspects can be used for any group of professions, including teaching.

As can be noticed, there are three key components in legitimate peripheral participation, starting from *legitimate*. The process is *legitimate* because the person enters communities of practise in an official and accepted way, thus legitimising the process and their further involvement in the learning. Secondly, it is *peripheral* because when engaging with a new job, especially in the professions that are well-established in practice, the newcomers most frequently linger at the edge of the job's core mastery. With time, the person gradually gains knowledge, confidence and trust of others in moving towards the centre and acquiring competencies required for the vocation. Finally, *participation* part of the Lave and Wenger's concept comes out of the essential understanding that only by actively partaking can one learn and reach the level of mastery. This confirms the understanding that legitimate peripheral participation is a kind of practical and situated learning that happens predominantly through one's own social, job-related engagement. This is mapped out in the simplified Figure 8.

Figure 8: Simplified depiction of legitimate peripheral participation



Source: Lave & Wenger (1991)

Figure 8 tries to portray this process in a simplified way, however it is important to note that Lave and Wenger have not accepted or agreed upon this depiction of legitimate peripheral participation. This is due to the fact that communities of practice quite often overlap and mastery at one job might be a periphery of another, thus creating a highly complex and dynamic graphic that cannot be presented here. This being said, Figure 8 is only used here to present a basic single-layered understanding of what the process might look like.

In context of the teaching profession, legitimate peripheral participation is important to understand because "the mastery of knowledge and skill requires newcomers to move toward full participation in the socio-cultural practices of a community" (Lave & Wenger, 1991, p. 29). The authors refer to the interaction of the old-timers and the newcomers, and the set of activities, identities, artefacts and practical knowledge that are seen as essential for gaining mastery. The configuration, as it is, can thus be approached as valuable in terms of passing the knowledge further to the newcomers, but can also be hindering to development of new knowledge and practices, destining a professional stagnation.

In concluding this brief overview of different aspects of work-based learning, it is agreed that people learn in work through one or more or the following activities (Tynjälä in Bakkenes et al., 2010):

- By doing the job itself
- Through co-operation and interacting with colleagues
- Through working with clients
- By tackling challenging and new tasks
- By reflecting on and evaluating one's work experiences
- Through formal education
- Through extra-work contexts.

Ultimately, as noted in the previous section when discussing transformative learning, Laursen (2006) notes that learning through work can also be described as a change or a progression which *a priori* demands individual and collective (organisational) motivation and active participation. In this sense, work-based "*learning is a process, transforming the knowledge base in a certain field of behaviour, producing a progressive change of behaviour,* where 'change of behaviour' also includes changes in ways of perceiving, feeling, thinking and knowing" (Laursen, 2006, p. 72). The knowledge base implies both of the learner's know-what and the know-how, and the latter is particularly interesting because it is based in the contextual, implicit forms of knowing. Laursen names this aspect of knowledge base as the part which examines "how people 'do' their knowing" (2006, p. 73) and in the workplace this is embedded in the environment, the relations, technologies, routines and changes, and as such corresponds to organisational learning, a notion that is explored in the further text. Two important elements are drawn from this, the first being that transformative and expansive learning impacts the skills, knowledge, and also the mindset of the professional. Secondly, the context makes a large contribution which is why transformative and expansive professional learning is brought up again in the discussion on innovative context as the chapter develops.

2.4 Teacher learning

In this research project, teacher learning is classified as adult professional learning that is embedded in both workplace paradigms and organisational structures. There are two important starting points for teacher learning; first, it is necessary to see teacher learning as a continuum (Beijaard, Korthagen, & Verloop, 2007; Cochran-Smith & Demers, 2010) and, secondly, teacher learning comes with a high level of complexity that demands one to understand how, why, and under which circumstances, learning occurs (Opfer & Pedder, 2011).

Several studies have looked specifically into how and what teachers learn. Bakkenes et al (2010) propose six categories of learning activities and four categories of learning outcomes which further get broken down to changes in knowledge and beliefs, intentions for practice, changes in practice and changes in emotions.

Within the categories of learning activities, the researchers identified the following types:

- Experimenting
- Considering own practice
- Experiencing friction
- Struggling not to revert to old ways
- Getting ideas from others
- Avoiding learning.

It is also worthwhile noticing that two of the most common – that account for around 2/3 of the situations – were *considering own practice* and *experimenting*. Other two categories that were also relatively highly represented among teachers were *getting ideas from others* and *experiencing friction*, while *avoiding learning* was the least frequent. Even though the research team has not explicitly mentioned, it is quite possible to have a combination of activities at one time. It is not unlikely that while *getting ideas from others* one can also *consider their own practice*.

With regards to the learning outcomes, Bakkens et al (2010) suggested the following four categories:

- Changes in knowledge and beliefs (including awareness, confirmed ideas and new ideas)
- Intentions for practice (including intentions to try new practices, intentions to continue new practices and intentions to continue current/old practices)
- Changes in practices (including new practices and getting back to old practices)
- Changes in emotions (including positive emotions, negative emotions and surprises).

The research results also showed that learning activities and learning outcomes are connected in multiple ways, indicating that it is very rare that one particular activity will cause one particular outcome. Rather, it is an interplay based on the individual teacher aptitudes and prior learning, as well as other external environmental factors.

While Bakkens et al research specifically looked at the context of educational innovation, Kwo (2010) suggests that rather than restricting learning space for teachers to schools and institutional environments, teacher learning should be observed in a wider global (and digitalised) space. She notes: "The locations of teacher learning, as captured from the contributions by various authors, reveal the challenges of established routines and systems, multiple tracks of inherently conflicting discourses, and authoritatively imposing theories and assumptions that can threaten to reduce teachers' learning space to formal setting in structured modes" (Kwo, 2010, p. 322).

Kwo reiterates the idea that teacher learning does not come in a form of a set day-to-day activity, but is rather a process of teachers' engagement in taking challenges and opportunities "with thoughtful reconnections within their inner worlds" (2010, p. 325). Ora Kwo also reminds of the essential role of language in teacher learning, as the tool that can make explicit that what is implicit and hard to observe. Therefore, she adds "This observation further challenges the conventional mode of training for teacher development that may have disregarded the latent power of teachers to learn, the significance of the struggles, and the deep meaning of support needed" (Kwo, 2010, p. 325).

Essentially, in her closing chapter of *Teachers as Learners*, the author asks two valid questions (Kwo, 2010, p. 326):

1. Why do some teachers persevere as learners, whereas many other teachers merely engage in routinized practice?
2. What are the motivations for and consequences of committed learning?

The answers to these questions certainly do not lie in a simplified form, and while there is a notion of difficulty in keeping a pace to learn with a full-time teaching job, there are intrinsic and extrinsic forces at work when teacher learning is in question. Greene (as cited in Kwo, 2010) offers an essentialist philosophical approach suggesting that teachers learn in order to re-interpret reality and gain readiness to enter a form of liveliness, therefore it is a way in which teachers can understand life and understand themselves. Likewise, teachers who persist in being learners, as well as those who do not, might behave accordingly by following similar reasons. For instance, considering that there is a common belief that teachers are supposed to be experts in learning (Bakkenes et al., 2010) – this might act as a stimulus and as an impediment to teachers to learn. In case of hindrance to learning, the ego and superiority can

act contrary to one's further wish to develop. On the opposite side, a teacher might feel a moral obligation to continuous learning exactly because of being at the forefront of learning. As Kwo mentions:

> Sustainable learning is a form of engaged living as moral beings. It is only when teachers can identify themselves as moral beings, concerned with questioning and making choices that they can create their own moral lives and arouse their students to learn to break with what can be too easily taken for granted (2010, p. 332).

Additionally, she suggests that it is a new relationship among teachers and educationalists that seeks to re-define and challenge the existing setting, proposing a cross-boundary collaboration and critical discourse and with a moral commitment to education. In her own words: "[t]eacher learning involves interpretation of dissonance from the latent knowledge and determination to accept complexity of the change process, given that a professional is held accountable for both the existing system and the call for reform" (Kwo, 2010, p. 318).

This evokes two important elements of the Bakkenes et al study that help in understanding characteristics of teacher learning. The first notion follows the idea that even the cases where a group of teachers is involved with the same learning activity (i.e. a professional development course), the learning outcomes for teachers are deemed to be individual and not the same. By saying this, Bakkens et al (2010) recognise the very basic element of human learning – that is noted also by theoreticians such as Illeris (2009) and Vygotski – that learning is part of an interaction between oneself and the environment. Professionals come with all sorts of background knowledge, which might stem from their professional and private life-spheres, thus this prior knowledge and the interaction with the environment influences in creation of new knowledge. This also leads to the fact that no two professionals will learn the very same from any type of professional learning experience.

The second important element that Bakkenes et al (2010) point out comes as a precondition in which the teachers were engaged in on-the-job learning and achieve meaningful outcomes for their professional development. They point out that teachers need to be engaged in self-regulated learning, in which they play a conscious role in the learning activity and have the control over it. This also draws to the idea that teachers need to be autonomous learners in order to regulate the conditions, engage with intrinsic motivation, and contribute to the favourable environment that will help them learn best. The concept of teacher autonomy is usually connected to the way teachers as professionals conduct their work-related tasks, but not necessarily with their learning or development. Schleicher (2015) notes that teacher

autonomy is an important element of re-creating the schools that will fit the demands of the 21st century because it offers the freedom and professional trust in teachers to assess the effectiveness of their own classroom conduct and decide on the best methods and content for their students and their learning situations. Yet, less has been said about the importance of teachers being autonomous learners, hence this is a phrase usually used for students (Smith, 2007). Autonomy in learning would imply a conscious, active, motivated role in taking advantage of a learning situation in which the learner either knows what they need or would like to learn, or is open to learning the unknown. According to a German report published to support the European Year of Lifelong Learning, participation in a more open, learning-network society requires that "learners themselves will have to choose and combine learning processes and strike the right balance between available routes of learning in a way that meets their specific needs. In other words, they will be largely responsible for directing their learning themselves" (Dohmen, 1996, p. 35). The report notes that individual behaviour and attitudes are the pillars of this learning approach as Europe experiences times in which values of autonomy and independence are deeply embedded.

In work-based situations, autonomy of learning is strongly connected to the tasks, and as Ellström notes: "the learning potential of a task may be said to be a function of its complexity, autonomy and competence requirements. One important precondition for anything but purely reproductive learning is the existence of 'objective' autonomy, that is 'individuals' scope for defining the task, its content, and the criteria for what constitutes a well-executed task" and "individuals or groups have to have the subjective capacity required to make use of the autonomy afforded by the jobs" (Ellström, 2006, p. 39). This enhances what Ellström (2001) notes previously in terms of levels of learning where the developmental creative learning offers a wide range of possibilities and uncertainties in terms of learning tasks, methods that are used and results that will emerge. Thus, autonomy in learning also enables learning to become expansive (Engeström, 1987). The expansive learning is based on developing new concepts through abstraction and the ability to enable simple explanatory relationships, called "germ cells". The end of this process is when the "initial simple idea is transformed into a complex object, into a new form of practice" (Engeström, 2015, p. 20).

The notions of learner autonomy connects to teacher motivation and engagement in self-directed learning, as described by Bakkenes et al (2010), but also to Kwo's (2010) concept of

sustainable learning. Thus, the idea of the learning continuum, as well as the concept of lifelong learning, are significantly tied to teacher professional development.

2.4.1 Teacher competence and teacher knowledge

It is not very difficult to conclude that teachers today might need a different set of skills and knowledge compared to their colleagues from the past. Based on previous knowledge generated by Lee Shulman (1986) on pedagogical content knowledge, Darling-Hammond (1998) reiterates a wide-ranged list that teachers need to know, including understanding the subject matter in great depth, having the foundations of pedagogical content knowledge, comprehending child and adolescent development from cognitive, social, physical and emotional aspects, as well as having the capacity to inquire sensitively, with a close look at students' work. Teachers also require knowledge about learning, from different types and preferences, to understanding the dynamics of learning among students. In addition, they have to grasp the value of collaboration and be adept to analyse and reflect on their own practice (Darling-Hammond, 1998). While from a general point of view, this set of qualities, knowledge and skills might describe a teacher today, a sort of contextual awareness needs to be applied to it too. What is meant by this is simply that not all teachers, and definitely not in all contexts (i.e. countries), need to have this knowledge. In many countries, the teacher knowledge is defined by the state and policies that deal with education, and in particular with educational assessment. Thus, there are variable factors that influence and dictate what teachers should know.

In case of most of the European countries, for instance, there is a lead document entitled *Common European Principles for Teacher Competences and Qualifications*. This document sets the principles for education systems and teacher knowledge and skillsets, advising that teachers should be able to (European Commission, 2004, pp. 2–3):

- Work with others
- Work with knowledge, technology and information
- Work with and in society.

Another European Commission document, titled *Supporting teacher competence development for better learning outcomes*, proposes that "[c]onceptualisations of teacher competences are linked with visions of professionalism, theories of teaching and learning, quality cultures and socio-cultural perspectives". It reckons that one needs to understand teacher competences as

‘dynamic combinations of cognitive and meta-cognitive skills’, assuming four fundamental approaches (European Commission, 2013, pp. 11–12):

- Learning to think as teachers
- Learning to know as teachers
- Learning to feel like teachers
- Learning to act as teachers.

As it is defined in the document, there are six broad paradigms that describe teachers as qualified professionals. Thus, the document refers to a teacher as a reflective agent, a knowledgeable expert, a skilful expert, a classroom actor, a social agent and a lifelong learner.

Also, it is worthwhile mentioning that opposed to Crowe’s concerns to professionalization of teacher vocation and education, which was predominately based on the examples from US, in Europe alternative pathways to a teaching qualification are quite rare (European Commission, 2013, p. 33). This further centralises the corpus of competences and the key agents in responsibility to deliver initial knowledge in teacher training in Europe.

Policy documents related to teacher competences, qualifications and knowledge also indicate that teacher learning and teaching cannot be taken as prescriptive, and that it is ultimately important to understand that the contextual liberties and restrains play a great role in how teachers are approaching learning in practice. This opens up a debate that is significant in specific micro-contexts at school levels, as well as at a global level, which enquires about the connection between teachers and education, pulling some fundamental questions in play. It might seem marginal at first, but asking questions about the purpose and the aim of education today and in the future, determines also the limits of teacher (and student) engagement. As Kwo concludes: “Paradoxically, learning may not be an immediate concern in the push for most reforms, if the goal is conformity to set agendas without sustainable and genuine focus on educational aims” (2010, p. 327). She continues: “(…) it seems natural for reforms to be perceived by teachers as tightening of behaviour and focus for accountability to predefined competencies and skills, or testing scores of students, even though such control may not be the intended outcome” (2010, p. 328).

Cochran-Smith and Lytle (1999) have elaborated on three types of teacher professional knowledge and the Table 2 below provides their basic features.

Table 2: Types of teacher professional knowledge

Knowledge FOR practice	Knowledge IN practice	Knowledge OF practice
Classical explicit knowledge	Tacit / implicit knowledge	Implicit knowledge
Declarative and easily shared	Usually unattainable	Rarely considered
Serves for improving practice	Serves for doing the practice	Serves teachers to teach well
Created, stored and shared by institutions concerned with teacher learning	Embedded in the daily work of the teacher; created by the teacher, usually not shared in structured way	Created by and among teachers in conditions where the classrooms and schools are considered as opportunities for knowledge production

Source: Cochran-Smith and Lytle (1999)

This typology of professional knowledge leaves considerable implications for teacher learning; investing in mechanisms for sharing the knowledge in practice and knowledge of practice might not always follow an easy and clear path. This learning path can also mean rather different learning activities for individual teachers, as it has been studied that different professional learning activities suit different teachers. Namely, while some achieve great learning outcomes from experimenting, others might be more adept to gathering information on their own, or collaborating and working with others (Henze, Driel, & Verloop, 2009). Providing sufficient time and attention to development of a good knowledge creation strategy within a school, thus, makes a significant difference. This was noted to be the central feature of innovative learning environments (OECD, 2015).

2.5 Schools as systems of professional learning

As noted before, teacher learning is classified as adult workplace learning and as such it does have a framework in which exists. Schools as places of teacher work contain certain characteristics which are important for completing the picture of the specific workplace learning among teachers. Next to these organisational characteristics, the research has a specific task to examine schools as places of professional learning, in particularly those places that fit the description as innovative learning environments.

Therefore, the task of this part is twofold: it starts from a broader conceptualisation of schools as places of learning, including the idea of schools as learning organisations. This is very closely connected to notions of school development and inevitably these will be examined as

well. The second task is to shed light on the notion of innovative learning environments and, in particular, how are they reflected in a school setting. This will connect to a broader but essential discussion on educational innovation, connecting it to previously examined school development and exploring the notions of curricular reforms and developmental interventions.

2.5.1 Organisational learning

Any organisation that has an interest in development has to be aware of the individual professional growth of its staff but it also has to consider to what extent it is capable to learn as an organisation. In literature this concept is called organisational learning and it can be defined as following:

> *Organizational learning* is defined as changes in organizational practices (including, routines and procedures, structures, technologies, systems, and so on) that are mediated through individual learning or problem-solving processes. According to this definition, organisational learning logically implies individual learning, but not vice versa. Thus individual learning is viewed as a necessary but not sufficient condition for organisational learning to occur (Ellström, 2001, p. 422).

According to this, it is implied that organisational learning depends on individual learning of its members, however, Elkjaer & Wahlgren (2006) define organisational learning through the perspectives of individual learning and this creates difficulties in understanding how the learning from an individual level is transferred to an organisation level. In other words, will the organisation contain the knowledge of the individual even after their departure. In order to solve this, organisational learning heavily depends on knowledge-sharing structures within an organisation as well as the capacity for reacting and reflecting on problematic situations. It is essential to break the defensive ways of communication and consider the organisation as a political entity in which the members act and learn on behalf of it (Argyris & Schon in Elkjaer & Wahlgren, 2006).

The connection between individual learning and organisational learning is also evident in the way Peter Senge (1990) defined it. He uses the notion of a learning organisation to pinpoint the capacity of the organisation to learn and explains that learning organisations are "organizations where people continually expand their capacities to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspirations is set free, and where people are continually learning how to learn together" (Senge, 1990, p. 3). From this perspective organisations can overcome their *learning disabilities* through mastering the five disciplines, namely:

1. Team learning
2. Building shared vision
3. Mental models
4. Personal mastery
5. Systems thinking

The series of simple but solid argumentation that Senge brings forth in his work point out to the fact that any organisation needs continuous rethinking of its structure, procedures and goals, regardless of the professional field. He calls this "a shift of mind" and "seeing the world anew" (Senge, 1990), referring to the idea of refreshed systems thinking that cumulates the other four aspects, or in his word, "disciplines". It is argued that stepping away from everyday details and issues helps in understanding how these issues contribute to the whole picture in a complex way, as Senge states:

> the art of systems thinking lies in seeing *through* complexity to the underlying structures generating change. Systems thinking does not mean ignoring complexity. Rather, it means organising complexity into a coherent story that illuminates the causes of problems and how they can be remedied in enduring ways (1990, p. 124).

Based on his original learning organisation concepts, Senge has teamed up with a number of educational experts in order to publish an educational resource entitled *Schools that learn* (Senge et al., 2012) where they explored the implications of learning organisations in relation to schools. As a very practical set of recommendations, Senge et al. (2012) note a spectrum of school-based that characterise school's potential for being or becoming a learning organisation. For instance, classroom-practices in which simple moves as opening the classroom doors in order to encourage peer feedback and observation, or understanding the perspectives of the learners, as well as having routines that enhance communality in and out of the school, can increase the learning potential of the school as an institution. Yet, the practical recommendations might not work without full engagement of those working in the school and without their will for continuous learning. This is why it is of utmost importance to transform the leadership that is capable of leading without controlling and creating and fostering a teachers' community that is based on trust, collaboration and interconnection (Senge et al., 2012). Similarly, Kools & Stool (2016) note that transforming schools into learning organisations aids in tackling with the immense number of challenges that the schools face today. For this to happen, the roles of teachers, school leaders, as well as other stakeholders, need to be reimagined.

For bringing the teacher as a professional learner into the picture of organisational learning, it is essential that the process of learning is "seen as a social and reflective process, happening simultaneously in individual, group and organization work contexts" (Antonacopoulou, 2006, p. 8). Thus, it is necessary to establish a context for learning in order to support and allow staff members to engage in more reflective activities over their own practice. This might in some cases mean providing opportunities that are distanced from the immediate work realities and that do not have the rigid requirements and performance outlines of the professional's primary practice (Antonacopoulou, 2006). Such a shift in teaching profession might influence the shift of mindset for one's own school practice.

Based on the notions of understanding the types of work-based learning of professionals, Ellström (2006) provides an interpretation of two basic types of learning; the first type is something that Argyris and Schön describe as single-loop learning, which is similar to reproductive learning described by Engeström. On the other end of the spectrum is the double-loop learning (as defined by Argris and Schön) which is comparatively similar to expansive or innovative learning (as defined by Engeström). The basic difference among the two is that for an organisation they bring different outcomes, namely, the first type would provide reproduction while the second would enable development. Respectively, one does not happen without the other, thus they both are needed in order for an organisation to thrive, while too much of only one aspect is typically regressive or harmful (Elmholdt, 2006). This balance of how the professional work is organised is well noted by Ellström (2006) who argues that reproduction provides stability and excellence in performance as it reduces variation in job execution. It offers to the employees to establish and maintain well-learned and routinized patterns, providing efficiency and ensuring constancy. The logic of development rests on the premise of discovery and creation, as it demands flexibility, variability and innovation of a routinized base. It is essential for the work force to engage in reflective learning and analytical thinking, and to embrace the high probability of error and failure. Thus, carefully crafting the tasks to suit the gradual development is of utmost importance, which is stated well here:

> Generally the learning potential of a task may be said to be a function of its complexity, autonomy and competence requirements. One important precondition for anything but purely reproductive learning is the existence of 'objective' autonomy, that is 'individuals' scope for defining the task, its content, and the criteria for what constitutes a well-executed task" and "individuals or groups have to have the subjective capacity required to make use of the autonomy afforded by the jobs (Ellström, 2006, p. 39).

Teachers' individual and collaborative professional learning, thus, is not only a matter of what

the teacher her/himself does in terms of their own development, but rather how the entire system approaches teaching as a profession and quite often it is intimately related to school as the setting and the role of leadership.

2.5.2 School leadership

With the growing challenges and pressures that schools today face in terms of adapting to the novel models of teaching, learning and functioning, effective school leadership and management has been placed to a spotlight as one of the core elements that support successful school development and change (Andrew Hargreaves, Halász, & Pont, 2007). This parallels with the fact that the concept of school leadership and management has raised ample academic interest in the last decades, especially in relation to school effectiveness and success as well as with a growing body of evidence that there is a strong relation between the two (Halász, 2011). And while leadership and management can be understood as a competency, the capability can be defined as "a social activity, which should enable others to rise to their individual challenges and meet them with necessary measures" (Schley & Schratz, 2011). In a comprehensive study of school leadership impacts it was argued that it is unlikely that there is one single model of effective school leadership (Day et al., 2009). Yet, what Day and his colleagues also concluded was that it is possible to "identify a common repertoire of broad educational values, personal and interpersonal qualities, dispositions, competencies, decision making processes and a range of internal and external strategic actions" (p. 2). Additionally, the studies also showed the immense importance of understanding the contextual elements of the school, as well as properly diagnosing the individual needs of the school collective, thus building a strategy accordingly.

Furthermore, Day et al (2009) suggest that different kinds of leadership are important for different phases of school development, thus creating a notion of layered development. The study of the impacts of school leadership on pupil outcomes showed that school principals not only have a very strong significant connection with the success of their students, but also affect the well-functioning of the entire school. For instance, school head's impact on teaching commitment has proven to be significant in three different ways: as teachers' commitment to their work, to their school, and to their professional development (Day et al., 2009). The study also revealed school leadership's significant influence on four dimensions related to their practices, namely setting the directions, developing people, redesigning organisation (external strategies), and use of data. And while there is a determined positive relation between principals

and teachers, through trust and encouragement, successful school leadership is also determined by leaders understanding the needs of the school and the leadership approach most appropriate to the situation. This input from Day et al (2009) strongly connects to accepting and adapting to an innovative intervention and changing the school culture towards a learning organisation (Giles & Hargreaves, 2006). Thus, leadership gains a prominent role in both processes of innovation and teacher learning in a school setting.

Schleicher (2015) argues that a formula for a responsive 21st century school has to include effective school leadership. In his comprehensive report *Schools for 21-st Century Learners* the author points out three important dimensions that need to be taken into consideration for schools of today and tomorrow:

1. Promoting effective school leadership
2. Strengthening teachers' confidence in their own abilities
3. Innovating to create 21st century learning environments.

It is important to understand that under this framework leadership is not restricted to only school principals but also incorporates head teachers or other teaching and non-teaching staff that actively supports leadership in a school, thus orienting towards distributed leadership. Thus, it is stated that leaders of 21st century schools need to understand how best to "empower teachers to play a role in decision making at the school level", how to provide valuable opportunities for their own continuous development, including receiving training (Schleicher, 2015, p. 9).

Distributing leadership onto teachers through creation of formal positions, but as well as through informal roles is an aspect that is strongly present in schools that embrace organisational learning (Silins & Mulford, 2004). While distributed leadership might help in creating shared vision, it still does not mean other aspects of the learning organisation should be dismissed. Team learning stems from a theoretical approach that argues learning is a collective phenomenon, implying that "cultural knowledge is seen as locally preserved, shared and transmitted to members of the organisation" (Antonacopoulou, 2006, p. 7).

It is it also emphasised that in-school relationships make a difference when it comes to teacher performance in classrooms, thus focusing on collaboration and open communication is suggested as a crucial element that connects leadership and student outcomes. Next to this, a

higher job-related satisfaction comes from school staff being more involved and having greater number of opportunities in decision-making processes (Schleicher, 2015).

This agrees with ground-breaking theories of successful leadership and management proposed by Nonaka and Konno (1998) by which it is argued that leadership "must come to the realisation that knowledge needs to be nurtured" (Nonaka & Konno, 1998, p.55). Looking from the lenses of a very specifically Japanese concept of *ba*, the notion of inspiring school leadership is an important element of knowledge-intensive schools where innovation flourishes. As pointed out by the authors:

> [*B*]*a* can be thought of as a shared space for emerging relationships. […] What differentiates *ba* from ordinary human interaction is the concept of knowledge creation. *Ba* provides a platform for advancing individual and/or collective knowledge (Nonaka & Konno, 1998, p. 40).

The essential connection that Nonaka and Konno (1998) make between leadership, enhanced with the concept of *ba*, and knowledge that resides within, is significant in order to understand the implicit and intangible ties that leadership has with both innovation in education, teacher professional development and, overall, successful school functioning and development.

2.5.3 School development

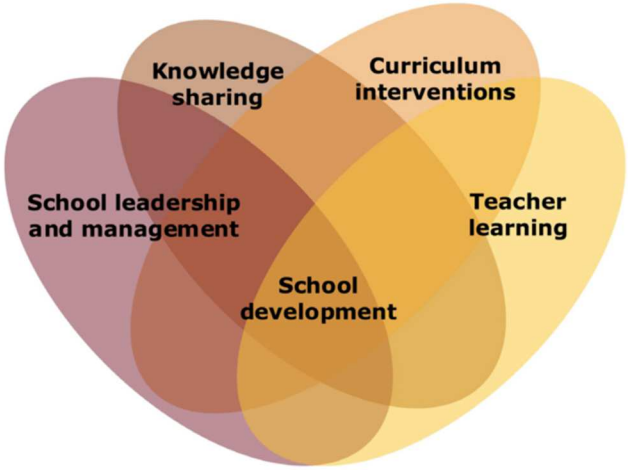
The argument of school development or school effectiveness is the one that ties together innovation, effective leadership, organisational, and workplace learning. Caena (2011) argues that teacher professional development and school effectiveness go hand-in-hand, as well as that school improvement programmes and their relation to active teacher learning are a fundamental factor in determining quality of education.

School development is often a matter of having several related topics intersected and combined, seeing a holistic picture of how the school operates. School development goes together with current educational trends, in particular those that connect to the key competences for the 21st century (Ananiadou & Claro, 2009; UNESCO, 2015). Frequently both educational change in general and school success at the micro level are related and connected to outcomes that support the development of the 4Cs: communication, collaboration, creativity and critical thinking. In addition to this, some resources add problem solving and decision making (Ananiadou & Claro, 2009).

Thus, having a school environment that is willing to innovate and to respond to the needs of the 21st century has been identified as one of the core elements to school success. In fact, Schleicher (2015) labels willingness to innovate as one of the three ingredients for a responsive 21st century school. The other two are teacher confidence in their ability to teach and a strong school leadership focused on enabling an innovative and knowledge-oriented school setting.

Kovacs & Gregorzewski (2017) have attempted to build on these and other perspectives related to school development, and piloted a model that also included effective school leadership, accompanied with teacher learning, knowledge sharing, and effective implementation of curricular interventions. Figure 9 is a visualisation of their attempt.

Figure 9: School development model



Source: Kovacs and Gregorzewski (2017)

The authors intended to analyse a set of successful practices by using the model that includes the four mentioned elements, namely, school leadership and management, knowledge sharing, curriculum interventions, and teacher learning, and analyse it through the perspectives of which mixes work and how. This implied almost the same set of important factors, with specifying that creating a learning environment based on innovation is a process of successful implementation of a change intervention and a practice glued to school development.

Mattila & Silander (2015) compare the change of the operational culture of schools through a metaphor of the washing machine: "[t]he hotter the wash, the cleaner and more in-depth the result, but the washing time is correspondingly longer" (Mattila & Silander, 2015, p. 3). In their model of school success, they incorporate also technology and capacity building.

Thus, the idea of school development is an integral one that reminds what are the aims of implementing an innovative intervention, investing in teacher professional learning, changing the patterns of school functioning and management, opening up leadership, as well as engaging in partnerships and wider collaboration.

2.6 Innovative learning environments

The term *innovative learning environments* was coined as a concept by the Centre for Educational Research and Innovation (CERI) of the Organisation for Economic Co-operation and Development (OECD). Developed as one of many projects, Innovative Learning Environments (ILE) was used to direct the work of the Centre towards understanding the specific circumstances under which young people learn pointing towards to specific qualities of the environmental factors that might enhance the learning experiences. Thus, the aim was to generate knowledge by looking at a wide spectrum of cases that are identified as innovative learning environments and provide a contributions and recommendations to micro, meso and macro levels (OECD, 2012).

Outline of the ILE OECD project

The project started with researching the concept of learning which culminated with a publication *The Nature of Learning: Using Research to Inspire Practice* (Dumont, Istance, & Benavides, 2010). This very broad spectrum of understanding the logics behind how learning happens led to the next phase which focused on bringing in reports of cases of innovative learning environments from around the globe and creating an inventory and an analysis detailed through a publication entitled *Innovative Learning Environments* (OECD, 2013a). Through the analysis of the common aspects of the cases, the publication enlisted a set of ILE principles and provided a framework that has been in use ever since.

In the third phase the OECD embarked on engaging with the countries, regions, organisations and individual schools to encourage a change on a large scale (OECD, 2012). The latest publication *The OECD Handbook for Innovative Learning Environments* (OECD, 2017) crowns the work done so far and offers a handy reading for stakeholders on different levels.

To understand the core of the term innovative learning environments, it is important to look at the learning principles and the framework that constitutes it. The learning principles of ILE come as a result of a thorough research of different aspects of learning, resulting in seven principles that support and enhance learning. However, it is important to understand that "[t]he force and relevance of these learning principles do not reside in each one taken in isolation – they are not a menu from which to 'cherry pick' some favourites while ignoring the rest" (OECD, 2017, p. 22). It is the entire composition that makes it work. The principles read:

1. The learning environment recognises the learners as its core participants, encourages

their active engagement and develops in them an understanding of their own activity as learners

2. The learning environment is founded on the special nature of learning and actively encourages well-organised co-operative learning
3. The learning professionals within the learning environment are highly attuned to the learners' motivation and the key role of emotions in achievement
4. The learning environment is acutely sensitive to the individual differences among the learners in it, including their prior knowledge
5. The learning environment devises programmes that demand hard work and challenge from all without excessive overload
6. The learning environment operates with clarity of expectations and deploys assessment strategies consistent with these expectations; there is strong emphasis on formative feedback to support learning
7. The learning environment strongly promotes 'horizontal connectedness' across areas of knowledge and subjects as well as the community and the wider world.

These seven principles supported across three dimensions constitute a Framework for Innovative Learning Environments and, according to OECD (2015, 2017), effectively support enhanced learning at a school level. The three dimensions are identified as:

- First dimension: Innovating the pedagogical core
- Second dimension: Learning leadership and the formative cycle
- Third dimension: Partnerships to extend capacity and horizons

The dimensions of innovative learning environment are quite commonly referenced in other places too. For instance, Schleicher (2015) notes that in order to have a school responsive to the 21st century needs, three key ingredients are inevitable in the corpus of school functioning. He notes that teachers need to be confident in their ability to teach, which also includes having a good balance of well-established practice and enthusiasm to further enrich their classroom methods. The second ingredient is the willingness to innovate as a core attitude within the school, while the last, and certainly not the least important, is the leadership that needs to have a strong commitment towards enabling schools to achieve their best possible results, including creating such communities that are content with their work environments (Schleicher, 2015).

Thus, it is noticeable that when it comes to learning, through its principles and dimensions, the

ILE framework mainly focuses on better student learning. Arguably, the school development, as well as the initial function of the school are ought to be seen in the service of the students. Notwithstanding, teachers and school leaders do have an active engagement, yet their learning is imagined through their work. This is quite obviously so, considering the previously emphasised workplace dimension of teachers' professional learning, as well as the embeddedness of their learning in the organisational (learning) structures of schools as institutions. Nevertheless, in order to support teachers in obtaining the ILE Principles, OECD offered a reformulated perspective with a parallel set of lenses particularly suited to teachers' work in innovative environments. The reformulations include suggestions that schools as innovative learning environments should (OECD, 2017):

- Offer opportunities for educators to share the ideas that support the priority and centrality of learning, both of their students and their own
- Support ideas of collaboration and avoid concepts of teaching as a private matter
- Offer recognition for their high motivation and good performance, supporting the idea that performance is intricately linked to emotions (e.g. satisfaction, self-efficacy, avoidance of helplessness and anxiety, etc.)
- Individual differences are considered with sensitivity, and they are holistically viewed together with the capacities and experiences of the teachers
- Engage teachers with a highly demanding work, yet avoid excessive overload and stress that might cause low performance
- Include clear set of expectations and that the assessment of the work is done formatively, providing rich perspectives on feedback that helps development and further learning
- Offer horizontal connectedness through which the educators can centrally contribute, in their subject work, curricular or extra-curricular engagement or other forms of collaborations.

While it is largely understandable what innovative learning environment might encompass, support and avoid, the term still leaves curiosity with regards to what it really means. In an attempt to define it, OECD focuses on the impact of learning (Dumont et al., 2010) without further elaborating on what exactly is innovation. Thus, it is said that the ILE project "focused on innovative ways of organising learning for young people with the view to positively influence the contemporary learning reform agenda with forward-looking insights about

learning and innovation" (OECD, 2013a, p. 3). Hence, there is very little focus on understanding innovation *per se*.

In order to even briefly cover the topic, the next few parts deal with brief insights into the thematic field of innovation in education, as well theoretical consideration of educational innovation implementation and their systemic frameworks (i.e. reforms and interventions).

2.6.1 Innovation in education: fundamental considerations

Concept of innovation is not an intrinsically educational phenomenon; it is notable that innovation has much deeper roots in science, research and development fields as well as in industry, especially that dealing with the so-called hard sciences (e.g. engineering, architecture, etc.) and art. As a concept innovation came to the field of education, and particularly in schooling, together with the alternative provisions, and only in the recent several decades has it become a favourable direction for the widespread of obligatory educational provisions.

Nevertheless, it is also interesting that innovation as itself was not always a favourable option. Godin (2015) comments that innovation gained on importance only after the 19th century, while before it has been actually strongly regarded as an unfavourable trait (Kovacs, 2017). Prior to this, innovators were considered as bad for the social stability and progress, due to what was considered as disruptive thoughts, and only after the French revolution was the concept more widely appreciated (Godin, 2014). In social terms, innovation was defined as such a change that provides the society with a radical or transformed character (Godin, 2015).

With an aim to define innovation in a very generic form, O'Sullivan gradually worked with the basic word definition provided by *The New Oxford Dictionary of English*. His resulting definition of innovation was:

> Innovation is the process of making changes, large and small, radical and incremental, to products, processes, and services that result in the introduction of something new for the organisation that adds value to customers and contributes to the knowledge store of the organisation (O'Sullivan & Dooley, 2008, p. 5).

Following the idea presented above, innovation is tied to change that leads to something new, something with a value. Much has been also debated about whether innovation as a process of change needs to be a new process or can be called innovation even as a borrowed practice, the one that is called imitation. Academics that closely debate the essence of innovation do not necessarily agree upon this question. Godin (2016) makes a very distinct cut between

innovation and imitation; for him innovation can be technological and economical, or cultural, and as such it opposes imitation because it is here to bring originality and development of thought. Rogers (2003) disagrees with this slightly by saying that an innovation is a practice or an idea that is perceived as new by the person or the unity that adopts it. By using the word *perceive*, Rogers implies that the innovation does not necessarily need to be a novel idea altogether, but rather needs to appear as new to those who adopt it. For Rogers, most of the people are imitators and followers, while only a small amount are innovators in a sense of creating something completely new (Godin, 2016).

Appropriating the discussion to the field of education, there is a number of ways to understand innovation, especially at the levels of schooling. Due to its highly contextual character innovation in education has to include the aspect of borrowing, therefore imitation is included in the definition because contextually it appears as something new (Kovacs, 2017). Furthermore, innovation in education has a different character when observed as a process that shapes the educational provision, and when researched as a desirable outcome. When innovation is observed as a desirable outcome of education, arguably it is not necessary to contain innovative processes within. For instance, an innovative outcome could be a development of incubators for student ideas. In many contexts, this would be considered as a novel idea but to develop it the school, and the teachers, do not need to be innovative in approaching the subjects or their instructions. Arguably, this can be successfully achieved with frontal instruction and elaborated traditional curriculum in a routinised delivery of subjects such as economy, math, social sciences and psychology. Additionally, in some cases even the innovation as a process might not bring the desired *innovativeness*; such example can be the introduction of technology into the classroom. For instance, using tablets as a way to deliver a subject is considered novel in some contexts. Yet, it is questioned whether there is the trace of innovativeness if they are used only to replace the traditional printed learning material. These examples indicate that there is a wide grey area of this subject that has not been studied in depth.

When discussing innovation, Hannon notes that “the term is often used loosely to include virtually any form of change; and notwithstanding the growing literature on the subject, clarity about the *form* of innovation suitable for given context is not always easy to establish” (2007, p. 1). From the pragmatic point of view, innovation in pre-tertiary education can, therefore include some examples such as pedagogical innovation – changes to classroom management

and delivery methods, technological innovation – changes that come from pressures of technology, architectural / spatial innovation – changes involving rethinking of educational space within the school setting, organisational innovation – changes to the way the school is managed and organised.

These aspects do not go alone, and usually if technological or architectural innovation is implemented to a school it will very likely involve pedagogical change (e.g. use of smartphone in classroom, abolishing the walls of the classroom, etc.). Other way around, quite often today will a pedagogical innovation include the use of technology or delivery outside of the classroom walls too. Similarly, an innovation in the way of organising work includes use of technology and quite often will translate into classroom instructions.

Considering that there is still an undefined substance in what innovation is in a school setting, it is safe to say that school-based innovation is a change that supports a delivery of better outcome for everyone involved, including students, teachers, school leadership, and the surrounding. This automatically involves the debate on why innovation is needed in school education today (Kovacs, 2017).

2.6.2 The context of curriculum reforms and educational development interventions

In the year 2000, the European states have agreed through signing the Lisbon Strategy to aim at creating "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (European Parliament, 2000). This has set the stage for both learning and innovation in education, even at the pre-tertiary levels. The notion of lifelong learning as a policy direction was emphasised, especially through adult education as either professional (re)qualification or continuous professional development. This emphasis might have come as a confusion because as a beautifully simple idea, Field (2006) points out that it is obvious that people learn across the whole span of their lives and this is not limited to the planned instruction provided by an institution. He notes that one "cannot stop [one]self from being a lifelong learner […] [b]ut lifelong learning is also a way of thinking about and structuring our society's approach to education" (Field, 2006, p. 2). Therefore, placing lifelong learning as a political intervention points out to the fact that occupations are ever-changing and non-predictable thus individual capacity to change the ways of working through learning new skills and adopting new attitudes is of utmost importance (Field, 2006).

For understanding the educational reforms in European countries today it is important to understand their connection to the larger European agendas, and one particularly important for the field of teacher learning and innovation is lifelong learning. The policies of lifelong learning often promote partnerships between state and civil stakeholders working together on the common objectives as Field notes, and he adds:

> achievements of modernity are placing the existing education and training system under enormous pressure. Three key factors in particular appear to be driving the desire for change: the ever-increasing speed with which knowledge is applied to practice; the ever-greater capacity if new technologies to process and transmit information; and the powerful impact of globalisation tendencies (2006, p. 23).

The factors mentioned above translate to national policy-making in one way or another, but producing a coherent policy and strategy is not always the case. Especially when addressing a term that is so broadly contested and undetermined as *innovation*. Thus, the term comes multiple times without a clear understanding and without a coherent framework. Furthermore, unlike in the private sector, for majority of schools innovation is not viewed as a crucial factor for survival which makes it more of an option or luxury, one that comes with high risk and very few incentives (Hannon, 2007).

Nevertheless, most nations around the world constantly implement some sort of an educational reform all the time, and these reforms span from having a focus on skills development, enhancing ICT literacy, concentrating on entrepreneurial skills or environmental literacy, and so on (Sidorkin & Warford, 2017). However, as Sidorkin and Warford note "[t]he problem of preparation for nonroutine cognitive work is difficult to address, for we have not yet learned how to measure skills that include critical and creative thinking and emotional and social intelligence" (Sidorkin & Warford, 2017, pp. 1–2).

Another issue with reforms and public policy interventions is that they come along with political terms and in many cases do not last long enough to become measurable. Attempting to implement innovation through public policy interventions also means understanding how the communication of ideas (of the innovation) moves through different levels and stakeholders. This was pointed out by van den Akker et al. (2005) in the following table.

Table 3: Typology of curriculum representation

Intended	Ideal	Vision (rational or basic philosophy underlying a curriculum
	Formal / Written	Intentions as specified in curriculum documents and

		/ or materials
Implemented	Perceived	Curriculum as interpreted by its users (especially teachers)
	Operational	Actual process of teaching and learning (curriculum-in-action)
Attained	Experiential	Learning experiences as perceived by learners
	Learned	Resulting learning outcomes of learners

Source: van den Akker et al. (2005)

The presented table provides sense about existing gaps between policy and implementation, but also between what is implemented and what is attained, thus when creating a policy measure it is important to understand that what was ideally configured at the beginning and placed in the form of documents and materials, might not necessarily be what the final outcome will be.

The inputs from the Rand Change Agent Study related to the public policy interventions, and particularly those inspiring innovative practices, provided additional understanding on how to shift towards having public policy that is more appreciative and understanding of local, grassroots processes (McLaughlin, 1990). The Rand analysis found out that within the implementation process and in cases where innovation has successfully rooted into the school culture, adoption of the intervention was merely a beginning. Thus, adoption of the innovation needed to be followed by a strong localised adaptation of the proposed changes which might not be easily visible within the greater picture (McLaughlin, 1990). Therefore, it can be argued that the processes that follow localisation of an innovative intervention from a macro level to the micro involve and depend on the capacities of teacher professional learning and adaptability of school leadership.

Furthermore, the ways in which the school will react to the implementation process was well elaborated by Snyder et al (1992) who worked with a pre-existing idea of polarised perspectives, including fidelity perspective and mutual adaptation perspective. The third dimension was brought in that is formulated through “evolving constructions of teacher and students enactment” of the proposed curricular change (Snyder, Bolin, & Zumwait, 1992, p. 402). Table 4 illustrates the important differentiations between the three implementation perspectives which particularly focus on the teachers and their role.

Table 4: Perspectives of curriculum implementation

Fidelity perspective	Mutual adaptation perspective	Curriculum enactment perspective
Produced by experts and specialists for teachers to implement through given instruction		Developed through joint engagement of teachers and students
• Heavily structured approach • Role of teacher: passive recipient who is / will be trained to transmit the content	• Teachers given instruction on how to implement content • Alterations can be made during the procedures • Involves a compromise between the developers and the implementers	• Curriculum provided by an external body / institution • There is no strict instruction • The syllabus and the material considered as tools for both teachers and learners when they engage in enacted classroom experience

Source: Snyder et al. (1992)

The idea that the role of teacher is of particular significance for the implementation of curricular change is rather obvious; from the perspective of being a passive receiver of an instruction to the concept in which the instructions, including the syllabus, are used as tools for creating new working and learning experiences, it is the teacher that initiates and transitions the idea and the working morale to the classroom.

Another important aspect of assessing the processes of innovative interventions and their implementation is through defining them from a perspective of macro, meso and micro levels. A Hungarian study that investigates the birth and spread of innovative practice in education has developed a framework which recognises 4 types of innovative interventions regarding their source, how they develop and spread. Two types are categorised as emerging through a top-down process and they include external public development interventions (supported and promoted by national governments and other public bodies) and external non-public interventions initiated by charities, academies, private bodies, or similar (Halász & Fazekas, 2016).

The other two types reflect a bottom-up approach to innovation development, including occasions of internal and external incentives at the single institution level. These two have been sub-categorised into:

- Internal incentive innovation development based on a conscious experimentation

- Internal ad hoc solutions to problems faced in practice
- Externally stimulated and inspired practices without aimed coordination or networking
- Externally stimulated and inspired practices coordinated through frameworks such as different school networks and partnerships (Halász & Fazekas, 2016).

By looking at this framework through the ideas of willingness to innovate (Schleicher, 2015) it can be assumed that the most intrinsic and possibly best stimulated school-level innovations appear in the two latter types of bottom-up approaches, notwithstanding the fact that even in top-down interventions willingness to innovate and / or to embrace innovations will emerge. In light of that, it is important to remind of the processes of implementation and absorption of innovative interventions (McLaughlin, 1990; Snyder et al., 1992). This notion strongly connects to the capacity of creating 21st century learning environments, through collaboration, coherence, and opportunities to innovate (Schleicher, 2015), but also to the capacity of creating professional learning communities (Giles & Hargreaves, 2006; Andy Hargreaves, 2007). Therefore, a school's disposition towards knowledge is a critical element that determines its innovative aptitude, and it is argued that this specific environmental characteristic is closely connected to the way schools are managed and led, as well as to the quality of the teaching staff.

It is easy to conclude that the quality of teachers will impact the quality of schools, and for this the education system in its entirety needs to be coherently ambitious and synchronised towards achieving this aim (Darling-Hammond et al., 2017). Through a detailed examination of the most successful education systems in the world, Darling-Hammond et al (2017) point out the important measures that need to be taken at the initial teacher education and recruitment level, through establishment of a system that allows for further continuous development and professionalism. The recently published European study on policies to support, develop and incentivise teacher quality (European Commission, 2018a), stands in agreement with this and also points out the evident need of enhancing the social status, prestige and attractiveness of the teaching profession among other things. Another highly questionable and deeply related issue is the one of teacher evaluation. Work performance and teacher evaluation is usually tightly connected to quality standards that guide teacher education in general. But in order for teacher evaluation to work in favour and not against innovation and continuous learning, the

evaluation system needs to support and help teachers to improve their practice, with a more formative elements and peer-appraisals (Darling-Hammond et al., 2017).

Furthermore, to accomplish the goal of having schools as model learning organisations and teaching as a learning profession, "the systems [need to] provide teachers with time to work with and learn from colleagues and to conduct their own research to test and measure the effects of innovative practices" (Darling-Hammond et al., 2017, p. 105). The analysis of the countries that have successful policy implementation of innovative educational provisions shows that teachers are allowed and encouraged to collaborate and observe others' practices, engage in research about practice, share and discuss findings with colleagues. Their worktime includes these activities therefore they are not an extra burden but integrated into the daily work scope (Darling-Hammond et al., 2017).

2.7 Teacher learning in innovative learning environments

The conclusion of this extensive theoretical chapter brings the attention back to teacher learning in innovative learning environments. Here all the previously mentioned concepts that were segmented and deconstructed in order to provide an in-depth understanding of the forces shaping this research are now reconnected in service to comprehend the core research phenomenon.

It is not possible to talk about school change, nor educational change, without teacher learning and innovation. Innovative intervention and teacher learning go hand in hand, for an obvious reason – to embrace the innovation a teacher needs to modify, change, learn how to apply whatever s/he has been doing so far to the new circumstances. And vice-versa to innovate is to think outside of the routine, to seize something new, adopt something that was not there before, learn and apply a different skill. In innovative environments, every activity may lead to "a change in knowledge, beliefs or practices even when a teacher did not have the intention to learn from that activity" (Bakkenes, Vermunt, & Wubbels, 2010, p. 536).

Yet it is highly important to state that to achieve excellence in the teaching profession is to understand how to best balance between innovation and routinisation in work. The two are heavily linked to learning and the feeling of success:

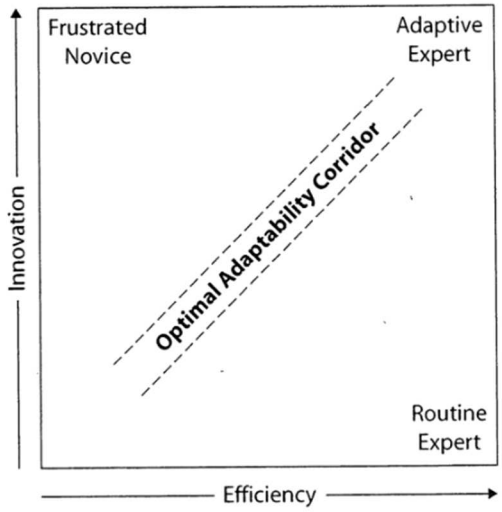
> In each of these accounts of teaching there is implicit acknowledgement that being appropriately innovative requires the development of automatized schemas and routines that provide enough background efficiently to keep teachers from becoming overwhelmed and losing sight of important goals (Hammerness et al., 2007, p. 363).

Therefore, *too much innovation* is not necessarily productive for teachers' professional development and can be as harmful to the practice as too much of routine work. Hence, understanding the balance and the necessity for both approaches is the teachers' supreme knowledge of their own professional conduct and of themselves as learners. Hammerness et al (2007) call this idea 'innovation within constrains' and ascribe it as a characteristic of adaptive experts who also are able to take into consideration the larger social context that surrounds them. Innovation within constrains helps teacher in approaching schools in different stages of development, together with diverse curricular provisions and student groups, with flexibility and professionalism, and learning comes in understanding how to teach creatively within the constrains (Hammerness et al., 2007).

This said, an innovative learning environment does need to provide accelerated expansive learning, but it needs to result in teachers gaining understanding about appropriateness of the approach and has to entail the possibility of routinisation. Innovation in this sense does not relate to a specific method, technological adaptation or spatial or organisational characteristic, but rather to the opportunity and potential that it carries for teachers to learn as highly qualified professionals.

With this in mind, teachers in innovative learning environments can be considered as adaptive experts, working between innovation and efficiency in the best response to each individual student need (Bransford, Derry, Berliner, Hammerness, & Beckett, 2007). Figure 10 depicts the optimal adaptivity corridor that lays between innovation and routinisation.

Figure 10: Dimensions of adaptive expertise



Source: Bransford et al. (2007)

What is implied with the idea of an adaptive expert is a hypothesis that successful teaching provisions indeed include the balance between two dimensions of efficiency and innovation, as Hammerness et al. note it is a "teacher's ability to effectively and efficiently use specific classroom technique and [...] her ability to develop a set of new strategies for […] learner for whom the existing routines are not enabling success" (2007, p. 360). Understanding how and when to use innovation is important part of the learning curve for teachers, as some decisions in classroom practice cannot be routinised since they rely on live human reactions and interactions. Thus, it is important to comprehend that:

> Lifelong learning along with the innovation dimension typically involves moving beyond existing routines and often requires people to rethink key ideas, practices and even values in order to change what they are doing. These kinds of activities can be highly emotionally charged, and the capacity to consider change without feeling threatened is an important ability (Hammerness et al., 2007, p. 361).

The factor of emotions works in at least two opposing ways. From one perspective, teachers learn about the practice and practice their classroom skills in order to achieve excellence. Pedagogical innovation disrupts this practice causing teachers to initially become less effective than before, which comes with understandable difficulty and emotional pain (Hammerness et al., 2007). On the other side, the teaching profession also involves a high level of affective intensity and feelings that emerge from classroom reactions and interactions carry a powerful influence over teachers' work (James, 2010). Dependant on these components, innovation as a change in teachers' everyday system can thus bring an energising feeling and can also cause anxiety. There is a logic that teachers apply in how they work as pedagogues, thus the pedagogies represent the ways teachers deal with content in unpredictable room of human interactions. Understanding these instance is the true value of teacher learning in innovative learning environments, and as much as "teachers cannot be made 'factory workers' […] they should not be made 'silicon-valley professionals' either" (Hammerness et al., 2007).

Furthermore, teacher learning that emerges in an innovative learning environment is tied to the specific innovation but often goes beyond a particular innovative model or technique. The transformative capacity of teacher learning in innovative environments creates a new type of knowledge and awareness of the world that transcends into everything that teacher as professional and as a private person does (Kovacs, 2018). Such practice is thus embedded in the transformative capacity of the school, and the comprehensiveness of the educational strategy and policymaking oriented towards supporting innovations.

3. Research design and methodology

3.1 Introduction: Scientific theoretical fundamentals

> "Research is, after all, producing knowledge about the world – in our case, the world is educational practice" (Merriam, 1998, p. 3)

There is a consensus in academic world that doing research is about searching for and exploring the truth(s) that reign the social and natural world. As explained by Cohen et al. (2005), research is systematic and controlled activity that includes inductive-deductive operations through empirical experiences. They further note: "research is self-correcting. Not only does the scientific method have built-in mechanisms to protect scientists from error as far as humanly possible, but also their procedures and results are open to public scrutiny by fellow professionals. […] research is a combination of both experience and reasoning and must be regarded as the most successful approach to discovering truth" (Cohen et al., 2005, p. 5). In order to achieve the quality of research outcome, the means of how the research has been implemented and the analysis conducted have to follow the logic of the research objectives and questions. The means, thus, have to be systematic and controlled, developed with a critical understanding of the phenomenon at stake. Consequently, they reflect the researcher's view of the social reality and overall approach to social science (Cohen et al., 2005).

Ontologically, this research assumes the realist position in which the "objects have an independent existence and are not dependent for it on the knower" (Cohen et al., 2005, p. 7). From the perspectives of epistemological assumptions, the research understands knowledge as subjective, unique and personal, based in the interaction between objects, thus, imposing an overall positivist approach. Finally, for the third set of assumptions concerning human nature, the research positions itself as such in which humans as subjects and objects of the study are primary initiators of their own actions, however, the notion of humans responding to environmental occurrences is also taken as a possibility (Cohen et al., 2005).

Set within the overarching framework of the *Transformative teacher learning for better student learning in the emerging European context* and the specific thematic framework of *The Learning Teacher*, the current research aims to better understand the elements of teacher professional learning in specific innovative environments. Following this umbrella aim, an understanding of the scope of the literature and conceptual underpinnings was developed to guide the study. The approach to literature was as comprehensive as possible with a focus on shedding light to the terms that are the building blocks of the study. This led to a natural

assessment of the initial objectives and research questions, as well as their redesign in order to achieve the accuracy for the current topic.

A qualitative research approach was selected as appropriate for the ontological and epistemological assumptions of the research, as well as following the in-depth understanding of the current literature and the scope of topics guided by theoretical background.

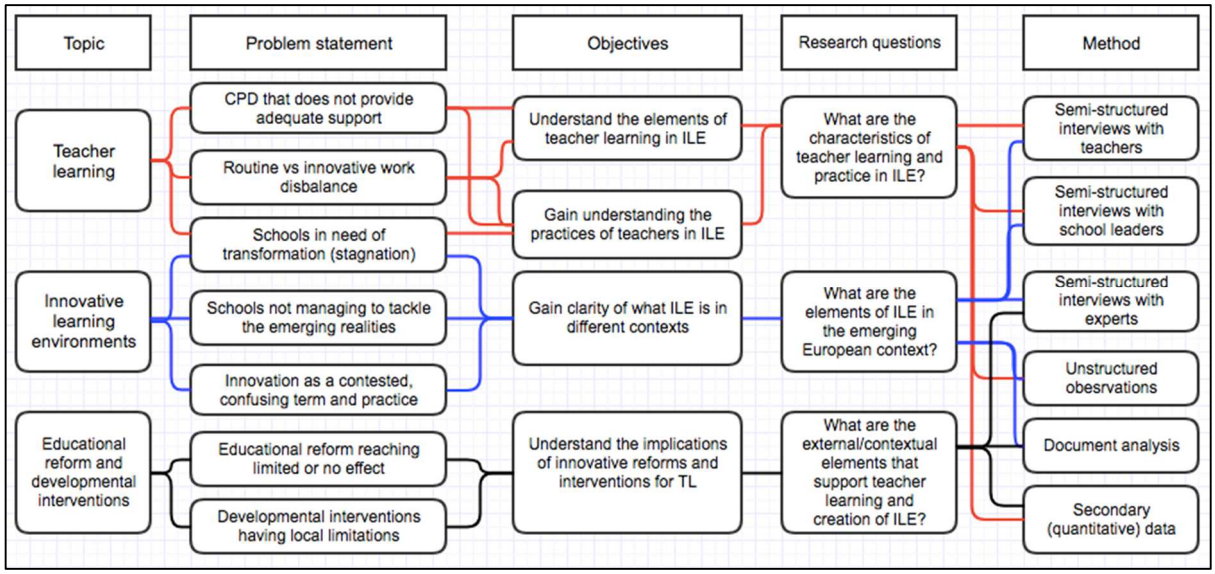
3.2 Selection of the approach

The rigour and robustness of the methodological concepts are defining points for achieving soundness and trustworthiness within the realms of academia. Thus, the method of inquiry needs to be closely intertwined with its objects and the purpose. Researching any phenomenon connected to innovation can be challenging from both perspectives of theoretical and empirical approaches, as the core attribute of innovation is that it is not constant. Innovation is ever emerging and the fact that it moves along the pace of constant development, demands caution of how it is approached. While often researches opt for developing a set of indicators based in a rigorous quantitative perspective, this research seeks to explore the quality of teacher learning as a phenomenon within the scope of educational innovation.

Even though qualitative research in educational science dates back to the early 19th century, it has only been fully recognised as a valid and valuable approach in the second half of the 20th century. The advancement for the field of qualitative research was brought forth by re-designing and re-defining methodological aspects of different approaches, providing a more insightful theoretical base (Bohnsack, Pfaff, & Weller, 2010). This pushes the researcher to view research beyond using a method as simply a technical exercise. Research is thus recognised as a comprehensive view of the world, as well as the purpose of it (Cohen et al., 2005). Qualitative research is able to dive deeper into exploring the individuals, the settings, the culture and the context, thus it is better suited to generate an understanding of phenomena and their interactions. Qualitative approach operates with the sense of discovery and exploration, rather than finite ideas, and therefore is open-ended with emergent empirical and conceptual conclusions (Baker & Edwards, 2012).

The development of the current study followed an approach of gradual and expansive knowledge development that was built on top of the existing experiential base of the researcher. In order to develop a visual aid in connecting the important elements of the study, a simplified scheme was designed that helps in outlining the research.

Figure 11: The research outline



Source: author

The scheme above presents a digest and a simplified understanding of the study outline and how the connections have been made. It is valuable to state that the interconnectedness between all the aspects of this research are more complex than presented, thus it is advisable to observe the scheme as only a starting point which evokes further interlinks.

Considering that the research was set in two European countries, Hungary and Portugal, case studies have been seen as the most appropriate approach to capture the complexity of the contextual elements and studied components. The unit of analysis, teacher learning, is considered as a multi-layered transversal unit that includes three important factors: personal, situational and political. All three can be looked at individually, however in order to understand the phenomenon in the centre of this study, teacher learning has to be observed at the cross-section of these three layers.

3.3 Case study approach

Case study research has a level of flexibility that is not readily offered by other qualitative approaches such as grounded theory or phenomenology. Case studies are designed to suit the case and research question and published case studies demonstrate wide diversity in study design. There are two popular case study approaches in qualitative research. The first, proposed by Stake (1995) and Merriam (1998), is situated in a social constructivist paradigm, whereas the second approaches case study from a post-positivist viewpoint (Yazan, 2015).

Case study "is one of the most frequently used qualitative research methodologies" even though "[r]esearch methodologists do not have a consensus on the design and implementation of case study" (Yazan, 2015, p. 134). Despite this, case study has proven to fit the scope and the characteristics of this research best due to the flexibility and the differentiated type of input, as well as the thematic outline that the research has set to undertake. Furthermore, since the research questions are specifically focused to understand teacher learning that is not a simple phenomenon but one that requires a descriptive analytical approach embedded in a layered case.

As such, the two case studies of this research project are defined, set up and implemented, using a mixed approach from Robert Stake (1995) and Sharan Merriam (1998). These two approaches to case study research are relatively close and to best fit the current research design – most appropriate elements were taken into consideration. Furthermore, the epistemological standpoint of the entire research into the teacher learning in innovative learning environment is based in constructivism to which both Stake's and Merriam's case study perspectives are a perfect fit (Yazan, 2015).

Case study portrays a study of a case that is particular and complex, and as such inquiries into a case that is integrated and complicated (Stake, 1995). Furthermore, unlike Yin's approach to case study, the Stakian perspective is more fit for a study of programmes and people than for events which therefore allows for four valid qualitative research dimensions, including: holistic, empirical, interpretative, and emphatic studies (Yazan, 2015). In Merriam's (1998) approach, the case is a phenomenon within a bounded context, and as such, and similar to Stake, a case study is a study that can describe and examine a programme, institution, person or a social unit in a holistic and intensive manner. This is very important in order to understand the reasons behind selecting case study method for the research; teacher learning is an examination of the routines, behaviours, attitudes and professional traits of a person, community and a system that are set into a specific working setting (Kovacs, 2017). To correctly and comprehensively understand the phenomenon at hand, it is important to select a method that is flexible enough but also strict in providing research validity. Furthermore, the study both examines and is set within a context of innovative learning environments; such environments are institution-based but also rely heavily on the interaction between professionals and of the functioning of the whole school-system (Schleicher, 2015), which demands for a holistic inquiry.

Following the exclusively qualitative approach of Stake's and Merriam's case study method in educational research, the research on Hungarian and Portuguese schools and teachers exploits individual semi-structured interviews, small focus group interviews, document reviews, and unstructured observations. These tools were found to be the most suitable for the type of enquiry the study is pursuing. Semi-structured interviews and focus group interviews were selected as a tool for data gathering primarily because they allow people to tell stories and "stories are a way of knowing" (Seidman, 2006, p. 7). Combining the general approach of Merriam (1998) and Seidman (2006), stories that are expressed in the interviewing process are the gateway of meaning-making that stems from the interviewees experiences. Thus, interviews in this research were used with the following logic:

> The purpose of in-depth interviewing is not to get answers to questions, not to test hypotheses, and not to 'evaluate' as the term is normally used […] At the root of in-depth interviewing is an interest in understanding the lived experience of other people and the meaning they make of that experience (Seidman, 2006, p. 9).

In the case of this research interviews in both individual and focus group settings had a deliberate intention of assuming a conversational symmetry as the power of the researcher was consciously balanced by the expertise, knowledge and experience of the interviewees (Czarniawska, 2004), especially because the selection of the sample included only such schools where the topic of innovation is prominent.

Furthermore, focus group was used as a qualitative technique that provides valuable insights from a group of individuals with a focus on a specific topic, and as such allows for a plurality of answers even in the most homogenous group (Dilshad & Latif, 2013). As it allows for a more natural context for those teachers who are used to working collectively, the focus group interview also has the potential to present verbal and non-verbal interactions, such as support, dominance and collaboration in particular, because of the language barriers that were sometimes present.

Document review was done in a relatively basic informative manner, as in only very few cases the written artefacts contained or were completely in English. Nevertheless, available websites as well as some of the school documents were included into the data gathering because they contain important information about the context and, in some cases, they also add insights into how the context is organised and functioning.

In both country cases any available information related to teacher learning and school-based innovation was searched for. Particularly in the Hungarian case, two previous national studies and their rich database were consulted in terms of understanding the national situation as well as gain additional insights into the selected schools. The two mentioned Hungarian studies are the Impala study –*Impact mechanisms of public education and development interventions* and the Innova study – *The emergence and diffusion of educational innovations*, both offering important insights into the Hungarian context. The studies provided also valuable insights into the relationships between innovative conduct and teacher behaviour which, hence, supported answering the main research questions.

Finally, observations were a part of the study considering that the data collection took place in innovative schools through two-day visits. The unpredictability of the innovation in every single case and the scope of possibilities that the school under the innovative measures could implement (Kovacs & Tinoca, 2017) was the key reason to choosing unstructured (naturalistic) observations. Taking into consideration that "[q]ualitative designs are naturalistic to the extent that the research takes place in real-world setting and the researcher does not attempt to manipulate the phenomenon of interest" (Patton, 2002, p. 39) in the case of this research observations were taken spontaneously, sporadically and when they had a special meaning to the conversation or to the larger issue at stake.

This mix of the tools supported a better and a more in-depth gathering of data, which additionally was also reflected in very specific interview questions that were exclusively added for each school setting.

3.3.1 Nested case study

In order to gain a better comprehensive view, the research opts for a nested case study approach (Pei Wen Chong & Graham, 2013) which uses a scaled line by travelling through macro, meso and micro levels. These levels and layers have all been identified as of crucial importance both in literature and in gathered evidence, thus analytically preferring the nested case study helps in understanding the historic-cultural, political, and socio-economic context of a particular nation and a school, but in the same time does not leave out the important, complex background of individual teacher as a professional.

Pei Wen Chong and Graham (2013) suggest three central elements for consideration:

1. Contextualisation – how the studied phenomenon falls into the geo-political, social, economic and historical reality of a certain context
2. The effect of globalisation – what are the implications coming from interaction between the local realities and the global trends
3. The potential for conceptual or practical application – analysing how the cross-section of different layers influence the practice and offer viable recommendations.

The nested case study allows for understanding the influences of nuances such as language, culture, population and political stance influence education, and set a path for those at the micro level. It also provides valid justification and explanation why some practices find difficulties in policy-practice and practice-borrowing through presenting not only the exact phenomena but the comprehensive and complex picture that it is embedded into.

Following this, teacher learning is a phenomenon that is analysed within an individual perspective that is nested in a professional characteristic connected to workplace learning, which are embedded into the organisational setting of schools as innovative learning environments, that operate in a contextual reality of a nation-state and its policies that define teaching, schooling and, consequently teacher learning.

3.4 Selection of the countries for the study

As previously mentioned in the introduction chapter, the current research titled *Teacher learning in innovative learning environments, in context of educational reform and developmental intervention* is a part of the *Learning Teacher* framework that has been designed prior to the start of the doctoral programme. The three strands, including this one, also had a predefined country selection, namely Hungary and at least one other country within the EDiTE consortium (Austria, Portugal, Czech Republic and Poland). Therefore, Hungary as the home country of the research was naturally pre-selected as one of the two countries. The research secondment took place at the University of Lisbon, thus in order to benefit of this convenience that the research project provided, Portugal was initially selected for the second country.

Institutional support that was achieved through close collaboration with the EDiTE technical secretariat and the partner institutions was of the utmost importance in terms of accessing the scope of respondents for the study. Given the very strict timeframe and the overall requirements, the overall quality of the research depended on the network that was pre-established with initiating EDiTE. This is the reason why the counties for the study were

selected within the EDiTE consortium and not beyond.

Additional reasons for taking Hungary had to do with the fact that the current research was also inspired by two previous national research projects: *Impact mechanisms of public education and development interventions* (*A közoktatás-fejlesztési beavatkozások határmechanizmusai*) and *The emergence and diffusion of educational innovations* (*Helyi-intézményi oktatási innovációk keletkezése, terjedése és rendszerformáló hatása*). These two projects, and especially the first one, have offered credible reasons to further explore the characteristics of teacher learning in innovative school settings in Hungary. The second national research has been implemented parallel to this current, which enabled knowledge sharing and better insights to the educational innovation sector in Hungary.

Similarly, Portugal has recently developed a comprehensive innovative educational policy that coincided with implementation of EDiTE researches, thus making it a favourable country for the study. Therefore, the *Curricular autonomy and flexibility* (*Autonomia e Flexibilidade Curricular*) and *Pilot project for pedagogical innovations* (*Projeto-piloto de Inovação Pedagógica*) were of particular interests for the research, and a valuable contextual setting among the five consortium countries.

3.5 Participants

The sample for the two national case studies followed a rationale that "schools are nested communities" (Vaillant, 2011) and by this not only are schools by themselves complex, layered organisations, but they also fit within a special setting that in case of both the Hungarian and Portuguese innovative landscapes means a lot of diversity. Thus, the sample for this research comprised the following types of professionals:

- Educational experts
- Educational policy-makers
- School principals
- School teachers

The idea of understanding the innovative context was the first step towards understanding the extent and character of teacher learning within. Hence, educational experts and policy-makers were necessary to gather a set of information that could help alongside the literature on both teacher learning in innovative schools and innovation in education in the respective country.

The second layer were the school principals; it was examined that principals hold a pivotal role in school development which includes the elements of implementation of innovative measures, supporting teacher learning and nurturing knowledge exchange (Kovacs & Gregorzewski, 2017; Kovacs & Tinoca, 2017). Therefore, it was necessary to interview school leadership and include this professional category into the investigation. Finally, school teachers are the very core of this research and including their voices on both their own development, routine, and challenges, as well as on their insights of innovations, was predictable.

There are three other categories that sometimes render in comprehensive educational studies that were intentionally not included in this research, and those include pupils / students, parents and representatives of community (i.e. local community, NGO representatives, industry representatives, etc.). There are solid reasons for not including these stakeholders, and at the forefront of this reasoning is the scope of the topic and the time framework. The scope indeed focuses on teachers, and while students, parents and community representatives can be very good indications of the effects of schooling and teaching (Czippan, Varga, & Benedict, 2010; OECD, 2013b), understanding the teachers' professional conduct under a specific innovative intervention needs to first be deconstructed and analysed separately in order to gain better meaning-making from stakeholders that are benefiting of it or are on the outside of the processes. This can be seen as a first phase in investigating benefits of teacher learning under innovative interventions, which could then lead into a further research of extended benefits and social meaning. Additionally, time and research management framework allowed for an analysis that covers a thorough understanding of the very core of the issue, which in this case was innovation and teacher development. Thus, extending the diversity of participants within such a tight time framework would significantly impede the quality the overall research.

3.6 Data collection and procedures

Process of data collection followed three phases. In the initial phase information about the national context was gathered. For this phase, educational experts and policy-makers were crucial, as well as thorough document review and literature overview. The interviewees were selected based on their expertise within the topic of educational innovation in both Hungary and Portugal. The process was supported by an advice from the supervisors in both cases. Interaction with the experts and policy-makers was done through semi-structured individual interviews and in one case a focus group.

In detail, the collection of data from the experts in Hungary included initial interviews with three experts, two of which were also involved as consultants in designing innovation and development policies in previous years. Two of the experts were also involved with high-end educational research, including a leading role in two national research projects on innovation in education. In Portugal, there were two educational expert individual semi-structured interviews and one focus group interview with three representatives from the Ministry of Education. The three governmental representatives were all involved in current educational reform and intervention generating innovations, while one of the two educational experts had a long academic record in understanding development of innovation in Portugal and the other expert served as a consultant to the government and to the schools in terms of supporting the implementation of educational change.

All the interviewees were first contacted via e-mail which provided detailed information on the purpose of the study, scope and overview, researcher's own background and ethical information such as confidentiality and procedures. The interviews were appointed at times and places most convenient to the interviewees, and they were all conducted face-to-face. The individual interviews lasted between 60-80 minutes, and the focus group interview lasted approximately 100 minutes. Data was audio recorded and transcribed within a maximum of three weeks after the interviews took place. All expert interviews were conducted in English.

After better examining the overall context of school innovation, phase two included school visits which were only informative in character and no formal interview would take place. The visits allowed for unstructured observations and for gathering data in the form of field notes as well as informative question and answer elements, yet these were mainly used for making a better interview guide in phase three. The visits allowed the school leaders and some teachers to get introduced to the research scope and the researcher, enabling a better interview relationship at the third stage. The visits were all setup by the EDiTE technical secretariat and they usually included larger groups of 4-9 researchers. The procedure of a school visit usually included a tour around the school, exploration of specific topics and innovations, and an overall question and answer section. In some occasions the school visit was completely or partly done in Hungarian or Portuguese and, in such situations, there was spontaneous interpretations offered by the technical secretariat. Almost all of the school appointments included visiting a classroom to observe part of the teaching within the class. There were in total 6 initial school visits in Hungary and 7 school visits in Portugal. The visits lasted between 120-200 minutes

each. Notes and where possible pictures from the visit were stored for further use in the interview guide, but in the case studies these notes will only render as descriptive input.

The essence of the third phase was the conduct of school-based interviews and small focus groups. After the initial visit, each school was further directly contacted in order to arrange a new date for visit and interviews. In all cases the correspondence included the principal from the side of the school. The interview guide with translated questions was sent to the interviewees, and all the interviewees were notified that the questions are mere guidelines for an exploratory conversation. Once the dates were set, the visit usually included first an individual semi-structured interview with the principal. There were few occasions where the principal was accompanied by another member of leadership team or when the deputy principal took the interview instead of the principal. Each school had a different routine, thus there is no typical scenario that followed the leaders' interviews.

The scope of activities included: another visit to a class and an individual interview with the teacher afterwards, only an interview with a selected teacher, interview with two teachers at the same time, a small focus group interview with three to six teachers, a walk around the school with a teacher and a conversation about the school functioning, coffees and lunches with the teachers and the principal, and short periods of being unaccompanied noting down the information and observing new ones. There were altogether 11 schools from which the data collection has been done, six in Hungary and five in Portugal. Each school was visited at least twice in order to obtain the data, and the total number of school-based interviews was 55, which included 12 professionals in formal leadership position (principals and people from the principal's office) and 43 teachers (between two and ten per school depending on the school size). The semi-structured individual interviews lasted between 40-60 minutes and the paired and focus group interviews lasted approximately 60-80 minutes. Due to the ethical regulations in Portugal, the interviews were not voice recorded. Instead notes were taken in a written form during the interviewing process. In Hungary, the interviews were voice recorded, and once transcribed, the audio file was deleted. Where possible the interviews were conducted in English, and where necessary they were conducted with the support of an interpreter. The interpreters were people that are fluent in both English and the language of the respective country and they were well acquainted with academic research procedures and the specific research project.

In the overall picture, the data collection was widely spread across the period of time between April 2017 and May 2018, and the number of individuals participating in the process included altogether 63 professionals. Table 5 presents the breakdown of the participants.

Table 5: Overview of research participants

Participant type	Number of interviews	Hungary	Portugal
Educational experts and decision-makers	8	3	5
School leaders (principals and deputies)	14	9	5
School teachers	41	23	18
Total	63	34	28

Source: author

The final decision on the number of interviewed participants followed the general idea that a sample which is loosely around 30 is an adequate medium size subject pool that can offer "the advantage of penetrating beyond a very small number of people without imposing the hardship of endless data gathering, especially when researchers are faced with time constraints" (Baker & Edwards, 2012, p. 9).

3.7 Data analysis procedures

The development of the framework for data analysis connects to both Stake's and Merriam's approaches to case study methodology (Yazan, 2015). For these two methodological authors, analysing qualitative data as part of the case study approach is, in essence, making meaning within the scope of the given topic. This is further extended to making sense which "involves consolidating, reducing, and interpreting what people have said and what the researcher has seen and read – it is the process of making meaning" (Merriam, 1998, p. 178). Since the field notes were not structured, the analytical framework departs from Stake's idea that the analysis should rest on the researcher's experiences, intuition and impressions, and follow more the approach proposed by Sharon Merriam who advises an application of constructivism and advocates for consolidation and interpretation, as well as that the analysis should take place simultaneously to data collection (Yazan, 2015).

Following Merriam's input (1998), the initial analysis of the data was done simultaneously during the collection phase and as such has had a continuous impact on the development of categories, which were still objected to change during further phases of analysis. Doing a preliminary analysis at the end of the collection time and again after a period of time allowed also for a better understanding if the recurring conclusions are indeed the same which supported internal reliability of the analytical model.

With respect to data validation, this research followed several strategies for data triangulation proposed in relevant literature (Merriam, 1998; Stake, 1995). Simply by following a multiple source research design, the data is triangulated on the base of the source. Cohen et al note that "in qualitative data validity might be addressed through the honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation and the disinterestedness or objectivity of the researcher" (2005, p. 105). While the interview guides differed in terms of the interviewee, and even in terms of every single unit (teacher, school, national expert), the basic components were always set in place in order to gain a spectrum of answers from different sources. However, the instruction for the interviewees was that the aim of the interview is to achieve a dialogue that is supported with research questions, rather than to have an interrogative situation. Furthermore, all school-related interviews with school leaders and teachers were conducted in their respective schools, ensuring that the interviewees feel more at their "playgrounds". By doing this the research aimed to create as natural setting as possible which would comply with some of the naturalistic principles, thus, could allow for interpretative approach to data (Cohen et al., 2005). Additionally, where possible, the interview "conversations" included respondent validation of previous observations and statements.

The core concepts underpinning the research, as well as initial data analyses, were discussed and debated over with a fellow colleague for the Portuguese case and with the supervisor in the Hungarian case. This provided the base for investigator triangulation and internal validity, through using peer examination of data (Cohen et al., 2005). Further notions of internal validity were achieved through confidence and authenticity of data by involving expert interviewees, as well as through cogency of the data in cases of teacher interviews. The plausibility of interviewees' statement was achieved through coherency between the interviewees of the same school and by observing their actions in the classroom. The external validity was ensured by data reflection as compared to the literature and other available research, both with regards to specific schools and specific phenomena.

In terms of ensuring reliability of the study, the cases have been enriched with elaboration of the researcher's position with regards to the issue and the scope of the study, to the choice of the respondents, social conditions, and methods of data collection and analysis (Cohen et al., 2005). Both national cases followed the same logic in terms of type of interviewees and more-less the number of respondents, and both country cases assumed the same naturalistic situations

where the interviews, focus groups, and observations took place. Methods were the same in the two cases, as was the status position of the researcher.

Data was first handled manually, being classified and structured in an Excel file. Later on, it was thoroughly analysed using MaxQDA qualitative data analysis software. Observations remained in form of field notes that were classified in a separate sheet, and categorisation has been developed following common threads deduced from notions found in literature and those that rendered as closely connected to elements from the interviews and focus groups. All conducted interviews, including focus groups, were classified and structured first in two separate sheets, one for each country, in order to generate data presentation for the national case studies. In the next step, a new sheet was created combining all data from interviews in order to have a better overview for the analysis. The interview data was categorised using notions that were deducted from literature and theory, as well as those that became recurrent and were identified as important during the interviewing process, even if they were not found in literature. Where possible, in cases of focus groups, notes on interaction and collaboration were added in the respective categories.

This all prepared the data for the analysis stage. Qualitative content analysis was used as an adequate approach, following a hybrid inductive-deductive pattern of ascribing codes and creating categories. This means that several concepts have been added from previous knowledge gathered through literature (deductive) and the rest of the codebook came directly from the reading of the transcripts and notes (inductive). The procedures and coding were discussed in a small peer group of researchers connected to the *Learning Teacher* framework, which assured external validity check-up revolving data analysis. The final analysis used a tripartite structure combining single units at the individual, organisational and national level. This allowed for a more reliant analysis of the phenomenon of teacher learning, since "[t]ripartite social science analysis thus represents more faithfully the varied kinds of scientific work we do and their varied interrelationships" (Jasso, 2004). This led to the final analysis which included elaborated patterns that support a development of a complete and holistic picture of the Hungarian and Portuguese case. Further on the tripartite analytical approach helped in developing more generic discussions over the researched phenomenon and finding common conclusions for the overall study on teacher learning in innovative learning environments.

3.8 Ethical considerations

Ethical concerns in educational research are a notable consideration and, as such, they need to be taken with much gravity. Cohen et al (2005) note several ethical issues and their causes, for instance the nature of the research as in an example of ethnic differences in intelligence or with the procedures as in an example of examining high levels of anxiety. Other ethical issues include the nature of the participants like in the example of vulnerable social groups or type of data like in the example of sensitive content of the respondents. By analysing these elements in the current research and reflecting on potential ethical problems, the methodological design was set in a way to maximise the protection of the respondents without endangering the validity and reliability of the study.

Prior to launching the data collection, each participant was informed about the EDiTE project, and the specific research project, the data collection and analysis processes, as well as of the ways in which personal data will be protected. This information was shared with the participants in written form (in e-mail) and in person prior to every single interview and focus group. Each participant was explicitly asked if they understand and give consent to participating in the research. As far as possible, collection of personal data was avoided. In cases in which some personal data (such as names) was shared by the interviewee, these types of data were never disclosed within the research and the anonymisation was continuously emphasised throughout. The data was stored in a digital form on a secured system (personal laptop of the researcher) in forms of textual documents. Voice recordings were deleted after being transcribed. If few cases were documents were involved, each of the documents was either publicly accessible online or in libraries, or the respective institution agreed to provide its documents freely.

At the stage of publishing material school data was completely anonymised. In case of providing quotes and descriptions, all participants were typically numbered, and in the case of comparative studies, “coded” with a country code, as in this example. It is common in research to use pseudonyms or assign numbers to respondents, and the latter was the case here. In the overall study, and used in this dissertation, the data was coded in a composite way which included type of interviewee and a number, and a numbered school: Teacher 1, School 1. Since the two cases are presented separately, there was no need to add the country code. The research participants’ identities were further protected “by combining data into a composite response and by discussing themes rather than particular entries” (Given, 2008, p. 215).

3.9 Limitations

As any research endeavour, this one comes with a list of limitations. These limitations encompass time and human resources, and linguistic barriers, yet it is important to stress that these limitations needed to be negotiated in order to get the study done.

The primary consideration for the research was the time dimension. There was less than three years to complete the entire project, including developing a comprehensive idea of concepts and backing literature, conceptualising the approaches, implementing data collection and data analysis, and of course tying everything together in a coherent reading. In addition, the research project had to be delivered with scarce human resources which also influenced basic considerations related to the implementation of the study.

These time and human resource limitations reflected on the decision over several aspects of research realisation. First such consideration was the adjusting methodology to fit the demands of the research questions, and also reflect realistically the capacities. Qualitative research design was developed as an appropriate response to the research questions, and it was also the best fitting approach considering the human capacities of the researcher in charge. Preparing a confident mixed method research approach would demand more time and more human capacities, including also rather superior skills in handling quantitative data. While this was partly covered in the Hungarian case by using secondary data of ongoing Innova study, the Portuguese case remains limited to primary qualitative data. Furthermore, from the methodological side, selection of the participants for the study is restricted to teachers, principals and educational experts. As noted before, relevant groups such as students and parents, as well as community representatives and representatives of the industry, were not part of this research project, mainly due to the limitation in time and human resources.

A limitation related to the data collection in this study was also the fact that due to time and resource restrictions, information was collected only from the school contexts that were identified as innovative. This provided a substantial understanding on how teachers learn in these specific environments. Yet, since no data was collected from schools that operate in traditional ways, a comparison between what makes teacher learning different in the two settings could not have been made. Hence, this is a promising avenue for further research considerations.

Linguistic barrier was certainly another limitation that had to be mediated during the study. It is well-established that:

> communicating in the respondent's language is of paramount importance, because the respondent may not be able to fully express his or her ideas in an unfamiliar language. Moreover, speaking the same language as the respondent helps to establish a good rapport. Second, the issue of cultural understanding comes into play (Tsang, 1998, p. 511).

However, given that this research is an international study, ensuring correspondence in the same language was impossible. Hence, this issue was dealt with communicating through mediators that were simultaneously interpreting the questions and answers, and where possible in English language. The interpreters in both countries were persons fluent in both English and the language of the country (i.e. Hungarian and Portuguese), and they were also aware of academic research and the scope of the study. The familiarity of interpreters with the ways of conducting research guaranteed lack of bias to a certain extent when interpreting the content.

4. Case studies: Common considerations

4.1 Structure of the case studies

The country cases on Hungary and Portugal serve a twofold purpose; on one hand they gather and present data from previous national studies, documents and interviews that have been collected and are critical for understanding the raw context and research records. On the other hand, they provide the preliminary analysis, thus each subchapter offers a summary that is next used in the final stage that provides a comprehensive discussion. Therefore, the two following chapters serve as self-standing initial analyses of the phenomenon of teacher learning in innovative environments and they are additionally used for further discussion over the research questions posed by the doctoral project.

The two national case studies follow a common structure and logic, and they are mainly based on the idea of the nested case study (Pei Wen Chong & Graham, 2013). Thus, the case studies include a comprehensive understanding of the national context through historical and current interventions and initiatives that focus on teacher professional development and school-related innovations. The chapters give an overview of the most important historical developments related to particular educational events that are important for understanding of context for teacher learning and innovation. Thus, in the case of Hungary these elements connect to the decades-long struggle for educational independence which in many cases came with efforts to modernise the curriculum, and which highlighted a particular role of teachers. In the Portuguese case this is rather connected to the period after the fall of the Salazar dictatorship which made Portuguese turn towards decolonialisation, democratisation, and development. These very different changes of the system have a common trait for understanding the context as they both evidently translate into current and a more comprehensive educational policymaking that are also presented in the two following chapters.

While the first part of each case study chapter looks into the bigger picture of how the national policies affected teacher learning, the second part moves one layer lower and presents four innovative schools that have been chosen for the data analysis. Understanding the national context in a way as comprehensive as possible is paramount for this topic. As much as teacher learning is implanted into a school organisation and culture, schools are rooted into a national context that bears specific educational characteristics. Unsurprisingly, the school level layer is of great importance as well; even though the context influences the school operations, the

setting that can be created in a specific school is sometimes an ecosystem of its own. The complexities of a specific school, especially of that which acts as a learning organisation, are elemental for understanding when discussing teacher professional behaviour and development (European Commission, 2018b). Presenting the specific school settings and characteristics in the case studies includes the components of leadership and teacher community, but also some of the other phenomena, such as knowledge creating and sharing, shared vision and tentative routines which colour the everyday functioning in the selected innovative schools. This part has been made descriptive and relies on the open observations and interview notes from the visits to the schools. Since the school descriptions take into consideration elements that make the school function in a particular way, data from interviewed principals was also elaborated here. The importance of understanding the specific school context and specific innovative environments lies with the fact that many of the innovations had specific characteristics in terms of how teacher learning is organised and stimulated. Hence, the purpose of this part is to comprehend the context and its characteristics at the meso level.

The following part of both case studies looks at the data mainly summarised from the interviews and focus groups that deal with the individual teacher characteristics of teacher learning. This presentation follows the main notions and coded categories that provide both an overview of the data and first level of analysis. Among other, they offer the teachers views on their involvement in the school and learning through following categories of their everyday work:

- Preparation and curricular duties – the way teachers prepare for their everyday work in innovative schools
- Special roles – roles that are atypical in traditional schools and are frequently present in schools that act as innovative learning environments
- Collaboration – approaches and importance of collaboration that are typical for intensive innovative environments
- Finding new solutions – the importance and imperative of searching for new solutions and how it connects to teachers in innovative schools
- Dealing with innovation – ways teachers manage with novelty and achieve the right balance between delivering the content and developing the practice
- Emotions – the essence of motivation and feelings that surround teachers working in the innovative school collectives

- Mind-change – a very special phenomenon that is triggered by innovations in school settings that act as learning environments and that influences teacher learning at a higher level.

The chapters are finalised with a country overview that provides both a summary of the case and offers a preliminary analysis of the three previous large parts.

4.2 Data for the case studies

The scope of the data collection was thoroughly presented in the methodology part. While the visits and the interviews served as invaluable source of information related to the context and the phenomenon at hand, not all were taken into data analysis for the case studies. The final decision for the data analysis considered four schools in each country that provide answers to the research questions in a most comprehensive and representative way. Thus, the data chart for the two countries in terms of school-based information is presented in Table 6.

Table 6: Overview of analysed data

Hungary			Portugal		
School 1	Teacher 1 Teacher 2 Teacher 3	Individual interviews	School 1	Principal Teacher 1 Teacher 2 Teacher 3 Teacher 4	Individual interview and a focus group
School 2	Principal Teacher 4 Teacher 5 Teacher 6 Teacher 7	Individual interviews and a focus group	School 2	Principal Teacher 5 Teacher 6	Individual interviews
School 3	Principal Teacher 8 Teacher 9 Teacher 10	Individual interview and a focus group	School 3	Teacher 7 Teacher 8 Teacher 9	Individual interviews
School 4	Principal Teacher 11	Individual interviews	School 4	Teacher 10 Teacher 11 Teacher 12	Focus group

Source: author

This decision on data analysis made the process feasible without impacting the reliability due to the quality of data. As noticeable from Table 6, each country case included 14 interviewees, which were evenly spread in individual interviews and focus groups. Each country included two focus groups. While following the methodological framework on dealing with data, each teacher was ascribed with a number. There was no need to do this with principals as each school had only one acting principal, and their identification code lies with the school number (i.e.

Principal, School 4). As detailed in the methodology chapter, there was no need to specify the country code, since the two countries are presented separately as independent chapters.

5. Country case: Hungary

5.1 Hungary: the contextual notions related to education

5.1.1 Brief historical developments

Hungarian education at its beginning was, as elsewhere in Europe, connected to church and teachings of clergy (Ministry of Education and Culture, 2008). Enlightenment in Hungarian education system is connected to the rule of Maria Theresa who installed the four-year elementary education and developed the people's school network (népiskola) across the region. The curriculum, including both teaching and the textbooks, was implemented in Hungarian which demanded for development of a national teacher training organisation (Kornis, 1932; Ministry of Education and Culture, 2008).

The following period saw greater political and geographical changes, which did not fully allow the Ratio Educationis to flourish. Nevertheless, the procedures for compulsory basic education remained and not following them was punishable with a monetary penalty. Additionally, in relation to changes, the dissolution of all monastic orders shifted the teaching commitment to civil servants and trained teachers which still suffered great scarcity. However, the change also entailed switching to German as the official language of instruction, implying that only teachers speaking German could teach in the schools. The shift back to Hungarian as the official language happened only after a half-century long struggle (Kornis, 1932).

The War of Independence 1848-49 strengthened the educational provisions of the newly independent Hungarian state, with four-year mandatory education being reintroduced. It did not only fortify educational policy but there was also an active stream of teachers who were vocal about fixing the public instruction asking for more democratic and liberal provisions (Kornis, 1932). Years following the unsuccessful war, Kornis (1932) calls as the period of Austrian Absolutism in which schools were subjected to German as the language of instruction and classes were composed of 100 pupils per teacher.

Further political agreements between Austria and Hungary allowed for substantial changes in education, in which József Eötvös, appointed Minister for education and culture, introduced a six-year compulsory education. This was seen as a great improvement in Europe, and Hungary was ahead of systems such as in England and France when it came to education of masses. Even if a costly endeavour, the results quickly reflected the literacy rates which more than doubled (Ministry of Education and Culture, 2008).

World War I and the outcome that culminated with the Trianon Treaty for Hungary caused the educational progress to stall. However, with the efforts of post-war education minister Klebelsberg who propagated neo-nationalist approach of reviving the Hungarian nation, over 10% of the state budget was devoted to education and culture, resulting in schools being erected throughout the country and scholarships being given to gifted students.

The introduction of "general schools" in 1945 brought an eight-year compulsory free education to all regardless of the social or cultural backgrounds, although few years into the communist rule, totalitarian methods took over and an imposed curriculum within a strict central control was introduced. Political turbulences in the period post the Revolution of 1956, as well as the shift from communism to a Western-style democracy after 1989 brought new provisions to education which have marked an era of Hungarian self-rule (Ministry of Education and Culture, 2008).

5.1.2 Past interventions fostering innovation

In its recent history, Hungary has passed through a turbulent period with respect to national measures that have been introduced to the national education system. These rather frequent changes, especially in the last 30 years, have seen periods that ranged from high level of school-control over the curriculum and an imposition to innovate for bare survival, to strict top-down regulations and rules alongside a state-led curriculum (Halász, 2003).

In early 1973, still under communist rule, a new opportunity has been introduced to the public education through school experiments. In the seventies there was only one single school which was truly experimental, but there were many school experiments throughout the country. These schools that implemented school experiments were different from the mainstream schools and, even though rare, they opened the doors for the next phase which happened in the second half of 1970s. In this period, for the first time in Hungarian history, the state provided opportunities for research on innovation in education as well. By the mid of 1980s new legislation was ruled in by the parliament that allowed schools to take so-called particular solutions. Under this legislation, schools that acquired an authorisation by the Ministry of Education could decide to deviate from the core curriculum and apply experimental solutions that were particular to their own situations. This followed a major movement in educational research and practice in which schools would take on alternative pedagogies in order to address the needs of heterogeneous classrooms.

The political and social transformation at the end of the 1980 and even more at the beginning of the 1990 provided an impetus to democratisation and modernisation of education in Hungary. In 1988, the first national Education Innovation Fund was established with a main goal to provide additional monetary support to school-based innovations. At the time, this state-led intervention was rather unique in the region that was in the midst of the collapse of Soviet Union. Also, in 1989 the idea of the National Core Curriculum was developed with a new framework regulation for compulsory schooling (Horvát, Kaposi, & Varga, 2013). The beginning of 1990s saw blossoming of alternative movements in education and at the level of initial teacher education student-teachers were introduced with courses on alternative pedagogies such as Waldorf and Montessori. The mere fact that the government, as well as the schools, have opened up to more democratic provisions has altered the way teachers teach and behave, and the need for learning inevitably grew stronger. In terms of how some of the previous measures reflected on the teachers' work, particular requirements that came with the radical decentralisation and abolishment of school inspection in 1986 and aiding pedagogical experimentation supported the inventive teachers and urged others to adapt to the new ways.

The 1990s saw decentralisation move a step further having schools responsible for the curriculum, thus the international donor funding was in many cases targeting schools with enforced innovation spirit. Also, expert conversations have revealed that there were initiatives of national programmes aiding first steps in introducing Information and Communication Technologies (ICT) into classroom teaching. Resources were given to schools to purchase demand-led teacher professional development programmes. The Public Education Act in 1993 reflected the overall state changes providing freedoms for founding schools and allowing parents to choose the school for their children. It also stood strong against any sort of discrimination. This led to "an over-decentralised organisation of public education that was unique in Europe, with a weak potential for quality enhancement, performance assessment and for the dissemination of innovation on a national scale" (Ministry of Education and Culture, 2008, p. 13). In brief, the schools found it difficult to cope with the new provision in which they were in charge of devising their own curriculum, and this created problems for both school leadership and management, as well as the teachers at large. The problems were remedied by phasing in the National Core Curriculum from 1995 which followed overall modernisations of the content and methodology. Additionally, in the period of the early nineties, according to the expert conversations, there was a remarkable strengthening of the quality enhancement, performance assessment and innovation support from the national level. Decentralisation was

accompanied by enrichment of state actions, tools, and interventions targeted at these areas, thus also creating many opportunities for the schools who managed to find ways to capture them.

The legislation, introduced in 1996 by the liberal government, gave each school a time period of two years, and by 1998 all of them had to create school-level educational solutions to perceived social problems. Additional to this, 1990s were characterised by large monetary investments from non-state sources, in particular from Soros Foundation, and its education modernisation programme. This investment of the non-state actors was much larger than anything the state was able to offer at the time, and under these provisions a programme of school self-development was established. In a period of just few years and under funding of Soros Foundation, 100 schools were trained to prepare self-diagnoses and develop their own school-level strategies that actively tackle issues identified by the school leadership. This was then spread through a horizontal school-to-school training method, thus creating institutionalised networks that support school development.

In this period, prior to the accession to the European Union in 2004, Hungary was characterised by a high level of economic support from charities and large international organisations (e.g. Soros, or World Bank at the level of VET) with their own agendas. In particular, this period also quite strongly featured rapid development and investment in innovative practices, particularly those targeting the teaching communities (Halász, 2015). For instance, at the dawn of the new century, a purely national programme called Comenius was introduced to the Hungarian education sector, under which 1500 schools were given the opportunities to hire quality leadership and management consultants, many of which came from the industry sector. As a large investment at that time in Hungary, this enabled schools to receive training on self-analysis and strategy development. This brought along more interest in management and leadership training, and working with innovations in education was officially seen as a part of the formal training.

In the countries of Central and Eastern Europe, innovation as a modernisation strategy came hand in hand with transition towards market economy (Halász, 2003; Radó, 2001) and this is true also for the Hungarian education system. While after 2004 the influence and work of some of the internationals remained, the investment and provisions shifted to state regulated programmes substantially funded by the European Social Fund (Halász, 2015). These programs were firstly procured through HEFOP – the Human Resources Development Operational

Programme (*Humáneröforrás-fejlesztési Operatív Porgram*), and later reintroduced through TÁMOP – the Social Renewal Operational Programme (*Társadalmi Megújulás Operatív Program*). Fazekas (2018) summarises and explains how these two programmes influenced curriculum developments in Hungarian schools, as provided in Table 7.

Table 7: EU funding targeting curricular developments and its implementation in schools

Programming period	Program code	Goal	Description	Number of schools (including preschools)	Awarded supports (EUR)
2004-2007	start with HEFOP 2.1	Strengthening integration	Supporting school level innovations related integration of disadvantages and special needs pupils	278 schools + 60 consortiums	≈ 15.476.758
	HEFOP 3.1.2	Spread of competence-based teaching and learning methodologies	Testing program packages developed by central agencies	12 consortiums (more than 90 schools)	≈ 5.708.790
	HEFOP 3.1.3		Implementation of program packages (tested by HEFOP 3.1.2 participant schools)	361schools	≈25.556.524
2008-2013	start with TÁMOP 3.3	Strengthening integration	Supporting school level innovations related integration of disadvantages and special needs pupils	174 schools	≈27.243.410
	TÁMOP 3.1.4	Spread of competence-based teaching and learning methodologies	Implementation of program packages (tested by HEFOP 3.1.2 participant schools), flow of related school level good practices	453 school maintainer (more than 1000 schools)	≈ 1.243.918.337

Source: Fazekas (2018)

Table 7 particularly looks into those aspects of the two national EU funding programmes that targeted development of school level solutions and innovations, and the analysis of these interventions has shown that they were all based on a complex development model with an interest of changing teaching methods, development of networks and culture of knowledge sharing (Fazekas, 2018).

The study conducted in Hungary in the period of 2012-2016 under the title *The impact of EU-funded development interventions on teaching practices in Hungarian schools* has provided valuable additions to overall understanding of implementation of innovations in Hungary. This research confirmed the ideas that innovative interventions had the strongest impacts in schools described as knowledge-intensive, and that some of the elements that support such schools include high level of teacher learning and horizontal cooperation, climate of trust, and school leadership that is oriented towards knowledge creation and sharing. Of similar importance was the element of continuous collection and analysis of data, and openness towards the social

environment. Schools that calibrate well with the notion of having distributed leadership and active involvement in overall school development set the best examples of successful schools in Hungary under the support of European Social Fund interventions (Fazekas, 2018).

Prior to this study a National Education Sector Innovation Strategy (*Nemzeti Oktatási Innovációs Rendszer stratégia – NOIR*) was devised following a comprehensive international review of the education system. The NOIR strategy proposed an institutional framework for knowledge creating and sharing with the aim of improving and developing educational practices that would enhance effective teaching and successful learning in schools. The objectives included (OECD, 2016, pp. 28–29):

1. Developing regulatory institutional and organisational frameworks
2. Improving human conditions
3. Ensuring quality
4. Improving knowledge management
5. Exploring potential of technological development

The NOIR strategy indisputably argued that "[a] well-developed sectoral innovation system contributed significantly to the performance of the education system and to the achievement of key public policy goals of the education sector" (OECD, 2016, p. 29) and insisted on the need for a comprehensive and coherent national strategy that continues to bring key partners and stakeholders to focus on improving the quality of education. In the following years, the NOIR strategy was supplemented with a further so-called NOIR+ study which specifically focused on the fourth objective of developing and improving the knowledge management system through better structures of sharing and creating knowledge (ELTE PPK, 2015). The special significance of this study was that it provided a base for the development of the teacher career progression system, which in its essence builds on the notions of teachers' learning within school communities (Halász, 2018).

5.1.3 Current situation: overview of reforms supporting innovation and teacher learning

Hungarian education falls under the mandate of the Ministry of Human Capacities (*Emberi Erőforrás Minisztériuma*), which has the responsibility of determining to a large extent the school curriculum and functioning (OECD & European Commission, 2015), and most of the government-led innovative curriculum interventions are funded from the European Social Fund which Hungary accessed in 2004 by joining the European Union. A major alteration has

been introduced to the school system after 2011 with a change of government and legislation that placed schools under strict, centralised governance of the state-appointed authorities. This shift came after two decades of decentralisation and had deterred schools and teachers with less autonomy to make decisions about curricular matters, student assessment, and ways the school functions (Halász, 2018). Only after 2016 there was some extent of decentralisation with regards to curriculum regulation; the government loosened the regulation and introduced the possibility of using flexible syllabi, as well as established 58 school districts to manage state schools which replaced the direct control from the central ministry.

Similar to the previous set of national programmes, HEFOP and TÁMOP, the current system uses European Union funding to address some of the current issues and support further development. The present national programme called Human Resource Development Operational Programme (*Emberi Erőforrás Fejlesztési Operatív Program – EFOP*) concerns several specific pre-tertiary funding objectives such as:

- EFOP-3.1.1: Support for early childhood education
- EFOP-3.1.2: Methodological preparation of teachers to prevent early school leaving
- EFOP-3.1.3: Promoting social inclusion and integration
- EFOP-3.1.5: Support for institutions affected by early learning of students
- EFOP-3.1.7: Creating opportunities in public education
- EFOP-3.2.13-VEKOP-17: Public education framework related to measurement, evaluation and digital developments of innovative educational management procedures.

While this is not an exhaustive list of all the EFOP sub-programmes, the funding scheme targets not only education providers but any social institution that aims to develop its human resources. Of course, some of the above are specifically targeted to schools (e.g. EFOP-3.1.2, EFOP-3.1.5). Another current development on the national level in 2018 was a devised new core curriculum for basic education that in this case is being done by an expert team without public consultation. This does reflect the fact that policy-making in Hungary is not always keen to involve a wide range of stakeholders, and in return risks being noncomprehensive and disconnected, causing revolting feelings among teachers. Such examples happened in recent history, for instance in 2016, when a so-called *I'd Like to Teach Movement* (*Tanítanék Mozgalom*) mobilised around 35,000 individuals and 940 educational institutions nation-wide to protest against the governmental provisions and overwhelming pressures teachers

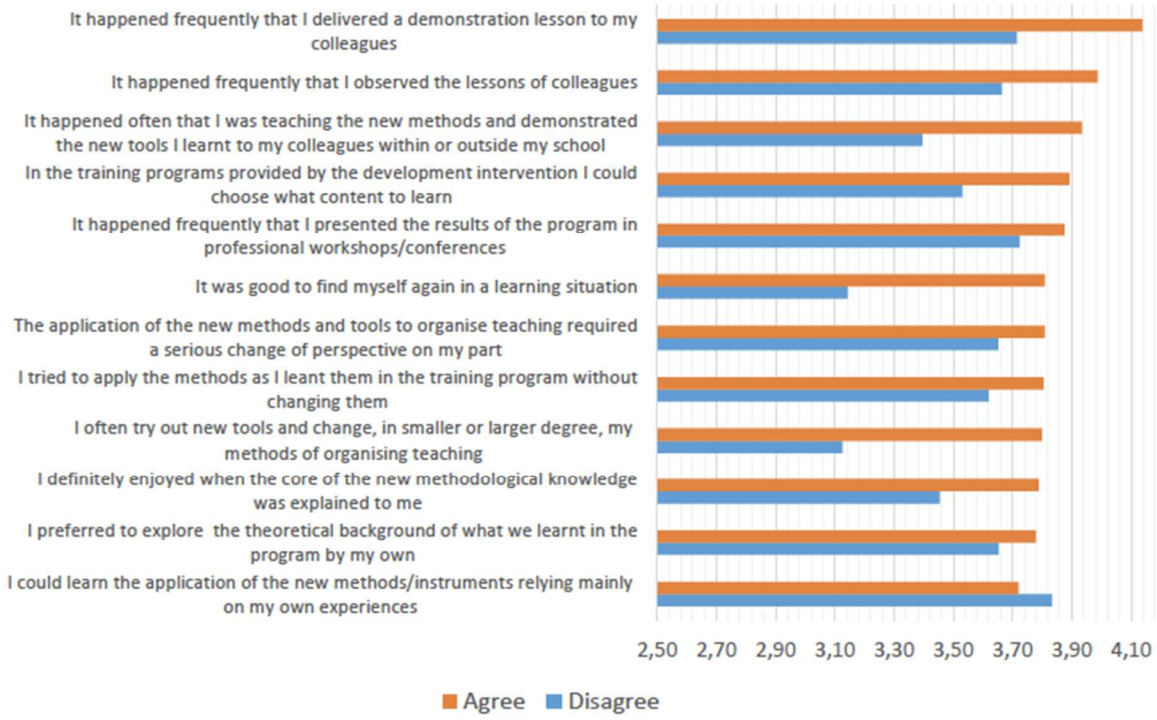
experience due to high levels of bureaucracy (Tóth, Mészáros, & Marton, 2018). In addition, important national research projects are also not always utilised to their full potential, which according to a conversation with an educational expert was a case with NOIR+.

Having said so, a national research is currently being implemented under the title *The emergence and diffusion of educational innovations* (*Helyi-intézményi oktatási innovációk keletkezése, terjedése és rendszerformáló hatása - Innova*) that has been producing important conclusions in relation to both how school-level innovations are developed and how they influence the teaching staff and practices. Hence, Innova research was developed with an intention of examining:

1. Conditions and processes that lead to the emergence of local innovations improving the effectiveness of learning environments and student learning
2. The conditions of the diffusion of such innovations
3. The ways these innovations influence the macro level effectiveness of the education system.

Even though the research is currently being implemented, first conclusions have already provided important input for understanding the nation-wide potentials for educational innovation, and consequently the teachers' significant role in it. One study, presenting data from the research project mentioned above, notes that thousands of teachers have been involved in developmental interventions and had to engage in expansive learning, thus shifting the importance for teacher learning from the initial teacher education to continuous lifelong learning (Halász, 2018). According to the study, survey data indicates that around 70% of all participating teachers were involved in training programmes and 1/3 of them had to step further and create pieces of pedagogical or methodological tools which were directly connected to their everyday challenges (Halász, 2018). The following figure also presents the high rate of learning methods such as observations and experimentation which have been also previously noted to be the main ways of teacher learning in contexts of educational innovations (Bakkenes et al., 2010).

Figure 12: Reported behaviours and attitudes of teachers related with learning



Source: Halász (2018)

It is significant to note also, that Innova results indicate that among 3200 surveyed teachers almost 85% reported that they invented new solutions for more effective pedagogical work at least once, while 40% noted that this happened often or very often. When exploring the specificities of the environments which impacted the teachers in a significant way, another survey discovered an important element of schools as learning organisations, namely the confidence of the school leader that the teachers are "adult learners capable of self-regulation". As Halász notes:

> In those schools where the value of this indicator [adult learner] was higher, teachers were using more student-centred pedagogical methods for competence development. for instance, the proportion of teachers using project-based learning was, on the average, about four times higher in schools where teachers reported that their leaders were seeing them as self-regulated adult learners (2018, p.17).

The EU funded development programmes made it possible for innovation to crawl into many schools and get integrated into the school processes in Hungary (Halász, 2018). Moreover, national research projects that study these phenomena also managed to make a trace and impact policy-building processes. For instance, the outcomes of the research connected to NOIR+ which was previously mentioned as generally underused and overlooked, did indirectly impact the development of the teacher progression scheme that is currently being used. The scheme

was introduced in 2013 and rests on the premise that teachers' career progresses with time and skills, thus there are five levels of teacher career progression:

1. Novice teacher: first two years after diploma, considered obligatory
2. Pedagogue I: maximum 9 years, considered obligatory
3. Pedagogue II: final obligatory stage
4. Master teacher: an optional stage that includes system level tasks of counselling and inspection
5. Research teacher: optional and can be obtained through application with a research plan and doctoral diploma, the status is renewed in 5 years and there is an obligation to do research.

The career progression scheme still parallels a 277/1997 government decree on obligatory continuous professional development that obliges teachers to accumulate 120 hours of CPD courses within 7 years. This is considered as a condition for remaining in profession. The decree also advised that schools prepare 5-years CPD plans and have yearly schooling plans that are accepted by the school community. Leaders of schools need to take specialised postgraduate courses by accredited authorities, usually based at state universities.

5.2 Presentation of four innovative school environments

This section gives an overview of the schools that were studied, and in particular provides important information on the environments in which teachers work. This said, each school presentation contains very few basic information and most of the space is used to present the particular innovations and organisational features that are characteristic for the institutions and that support teacher learning.

The importance of presenting data at the level of school serves two purposes; firstly, it is significant to become familiar with innovations that these learning environments introduced hence to develop an idea of how specific these environments are. Secondly, it is important to understand that a school functions as a workplace ecosystem thus showcasing that elements such as overall organisation, physical environment, timing and schedules, approaches to curriculum, and leadership approaches are of great prominence in gaining an overview and furthermore understanding teacher learning in innovative environments.

While governmental interventions have been a significant factor for schools to create innovative learning environments, they were not the only source of innovations in schools.

Many of the initially visited schools developed their own innovations, and in some cases these innovations spread further within wider network of schools. All four Hungarian schools presented here have an open-door policy which estimates that in certain periods the school is inviting visitors to freely enter and observe classes. It is also clear that without exception, the school-based innovations were connected to the leadership approach, which is separately examined as a common factor at the end of this subchapter.

5.2.1 School 1

The school is located in rural part of Hungary towards the east, and has drastically changed in the last decade and a half since a new pedagogical method has been introduced. This was one of the first schools in Hungary to implement the so-called Complex Instruction Programme which was introduced by the school's principal who attended a training on the method in US. Complex Instruction is a methodological approach that rests on a concept of collaborative learning and encourages specific interactions among students to achieve the learning goals and most importantly to support the status change of the student. In particular, it stresses the idea that everyone in the group has something to offer and has a role important to the group, thus through participation students learn how to deal with both specific academic tasks and exclusion. Furthermore, as an aim, complex instruction ultimately targets students' status and supports overall social mobility, thus the leadership was very strict to keep the method as it was originally developed. After the principal brought the idea of the method back to Hungary, one of the teachers explains how it all started for them:

> "We went to Pecs for training, and the principal organised it for us as a small group. And we got familiar with this method and try to learn how it works in that training, it was a two-three days training. Immediately we started using it because we felt it was something we wanted to use and we needed it. We wrote some tasks and lessons based on this method, but we were not sure it is that really works. It was not as open-ended as now, but it worked. At the first moment the very important thing was that the tasks are open-ended, that was the main aim in the whole thing. So, we worked on it, and tried to make it more and more perfect, but what was the very important for us was the kids' status in this whole method and we felt that we needed this method to make it better" (Teacher 1, School 1).

Residing in an area with a high level of social deprivation and heterogeneity, the school has managed to achieve a high success rate, especially in eradicating the social inequality of the Roma population. It has been praised and recognised as an example of good practice and educational success at the national, regional and international level, thus organised school visits and class observations are a frequent event for the school. Furthermore, with a very strong and

determined principal, the school has become a so-called “teaching school” for other schools, nationally and regionally. The principal and the teaching staff perform educational seminars in other schools and train other teachers in using the complex instruction method. Over years of doing so, the school has managed to create a growing network of schools nation-wide that use the same method and continuously collaborate and share elements of practice. The principal of the school has also developed a methodological centre for teacher training and, in her role as a university educator, she teaches new generations of teachers how to handle hardships of social inequalities in classroom and successfully apply the complex instruction method.

> “We are innovative and open on daily basis, but it was very difficult to switch to other perspectives that we were not used to. It was very difficult in our minds to get over this traditional method, and switch to open-ended tasks and sometimes I think about one task for three days. […] Of course, now it became a routine, but it developed according to the experience, and even according to the physical classroom setting, from the angle I stand and look at the kids” (Teacher 1, School 1).

One of the interviewed teachers was notably a student of the university programme few years back and she pointed that she first got to know the method at the university, which led to a practice in School 1, and finally, employment. This teacher noted that not all her student peers were impressed by the method but for some it was difficult to focus on several things simultaneously, therefore they opted for more traditional practices. Notwithstanding this, the teacher noted that she is convinced in the success and necessity of the approach and hence was willing to continue to a doctoral level, while doing her teacher practice in the school:

> “I am using this method from the beginning as it makes sense and it really helps. I am also writing a PhD dissertation on how to handle different status with complex instruction and how to prepare teachers” (Teacher 2, School 1).

Among the interviewed teachers there was an obvious conviction that the method leaves a permanent positive outcome for students and as such should be unquestionably used elsewhere. The fact that it spread onto other schools proves this point too.

5.2.2 School 2

The school is situated in a small village south of the capital, and has a rather large student population of around 750 students and about 70 teaching staff, among which a total of nine master teachers and 80% of teacher on Pedagogue II level. The school is known as an integrated elementary and arts school, which means that there is a voluntary department that focuses on studying arts, such as traditional dances, singing, paining and other crafts. In addition to this, the school is labelled as an eco-school, which is a national initiative that focuses on

environmental issues as integrated into the school functioning and its curriculum. Furthermore, the school has two additional distinctions, the first being the so-called happiness programme and the second is talent recognition programme.

The happiness programme started as a school-wide idea to raise the levels of student well-being. The teachers noticed a high level of depression among the students thus several attended mental health courses, as this teacher explained:

> "It was the same with the happiness hour. The teachers of the school saw this opportunity that was organised in Budapest, it seemed very interesting, so we applied for it and took part in workshops. And then brought the idea back to the school and spread it with the local teachers" (Teacher 5, School 2).

Even though not unique, the talent development programme gives an added value to the school and places it among the institutions that are truly student-centred. These programmes together are integrated into the curriculum and the functioning of the school as this excerpt sums it:

> "We have become an ecological school, happiness school and a talent point. We have our own system of games, which are adapted and continuously developed and in terms of methodology we use cooperation and differentiated teaching and these elements are all built into the everyday practice of the school" (Teacher 6, School 2).

Additionally, the school has a very complex organisation of work which is based on teacher teams, under a distributed leadership format. One of such teams is in charge of a large archive of data that school collects in order to measure the levels of satisfaction from different stakeholders such as parents and students. This database (internally called the "AGY" which in literal translation means "brain") is used to fine-tune organisational, structural and curricular matters and is often a valuable indicator for determining further school strategies. The teamwork and collegiality that teachers engage with in the school is a determining factor for the success of the school and teachers take their roles in teams with high professionalism, as these two interview extracts point out:

> "The school is outstanding for this. We regard teachers as colleagues, not necessarily as subject teachers of maths or language. It works in the everyday practice as well, if there is a colleague that is very good in crafts I can ask them to help me with a class for example to make an origami" (Teacher 6, School 2).
>
> "We are very professional. It is in my perception that sometimes you have schools where for instance maths teacher only works with the other maths teacher, and the humanities don't mix with sciences, and so on. Here not. We are very professional here" (Teacher 7, School 2).

Teachers also take seriously peer classroom observations, and curricular experimentations are quite often initiated internally and gradually spread within the whole teaching community until the approach becomes embedded as a school-wide practice. Creating a strong unified community was a goal of the current and previous leadership team, as the principal notes:

> "She [the predecessor] started to add this feature of consciousness to how school is functioning. She was in a way a visionary, she saw the opportunities in the future and the school was the first in the country to start their own pedagogic programme. Later on, it was compulsory for all schools to do it. It was like a vision and a mission of the school, every school now needs to prepare this, but we did it long before when it was not compulsory. And then we had the contribution of the Comenius programme and the European programmes for quality and AGY is just one of the products of this quality assurance. But the whole story is much broader in terms of how we work" (Principal, School 2).

The school often uses borrowed techniques such as SWOT analysis to understand the root of problems and possible options for solving them. Two years ago, an end-term conversation was introduced for all teachers in order to assess their professional development, satisfaction and address any issues that might cause dissatisfaction, including some personal ones.

5.2.3 School 3

Located in Budapest, the school is a small institution that currently has primary education provision, with a plan to expand to the secondary education within the coming year. The school has a complete integration of special education needs pupils and has been one of the first schools in Hungary to do so. With classrooms that are diverse in terms of physical and mental ability of children, the school actively uses a mix of different collaborative learning methods, differentiated learning and individual support where and when needed. The principal explained how the process all started for the school:

> "During the 80s there was a political revolution, so this was an opportunity to develop a new type of school, to get new ideas, to make a new system. At that time, it was an opportunity to establish a new method, a new kind of school, and we thought that the child must be in the centre, which was a very new kind of thinking at that time. To have a student more important than the subject or the curriculum, that was a new view on learning. At that time our aim was to find the school for everybody, regardless of personal abilities or opportunities. We tried to find different kinds of methods that can suit different students" (Principal, School 3).

Asked to explain the method the principal continued with a gentle smile on her face:

> "We always say it is [a combination of] Maria Montessori, Rudolf Steiner and the little village schools in Hungary. So, in the little village school if there is a second grade and four grade students, the teacher won't teach the third grade. It is not important to find a

> middle, but we have to find what they need. This method gives a role to both the teacher and the student" (Principal, School 3).

The method indeed focuses on the student being both a competent self-motivated learner as well as a collaborative learner, stressing the importance of understanding the potential of learning from each other and from different experiences. A teacher commented during one of the observations that she had a situation where the students of second grade gathered to learn about a hearing aid which one of their peers have had. This was organised in an open way with the peer explaining the functions of the hearing aid followed by questions and answers of the rest of the class. Facilitated by a caring teacher, this allowed every student to understand better the differences among the students and helped for children to find a healthy bond and to see the personalities of each other rather than to focus on disability that is largely socially constructed and constrained.

With the aim of having a better provision of education for all students, the school also implements pair teaching and the teacher pairs in some cases change accordingly. The main objective of all classroom practice is to truly "reach the child" and help them become autonomous in learning.

> "At the beginning of the lesson, the group is on different levels and they work together to try and explain each other concepts in different ways. After that, everyone can work alone in their pace on their own tasks. That are the main two things, and it follows the understanding of learning and types of intelligence explained by Gardner. We try to follow this and prepare exercises accordingly. Sometimes, it is pair work, group work, moving, listening, drawing. As we try to get our children better, we are trying to improve our methods with two things in mind: cooperation and differentiation" (Principal, School 3).

The typical morning in a class at the school starts with a 30-minute conversation about how the students and the teacher(s) feel and what had happened the previous day. This part of the day was described as very important for the teachers as here is where they can build a sense of their students and also develop a sense of community among the students. The classrooms are specially dispositioned so they contain a corner in the back where these morning conversations comfortably take place. The conversation space is also used when teachers have smaller groupwork while the rest of the class is working individually. This space is fitted with mattresses and indeed resonates with a level of intimacy and safety.

Classes normally last for 90 minutes and as mentioned contain larger groupwork, small instructed groupwork, student pair works and individual student work. The students are

assessed in formative way until the grade six which is the point from which the teachers are obliged to give summative assessment under the national educational law. Formative assessment is perceived to be a much better option that supports learning, thus, even after sixth grade, it remains as the main supportive system of evaluation next to the summative mark.

Due to the complexity of the method and heterogeneity of the classroom structure, new teacher employees (both the novice teacher fresh from the teacher education and those with previous experience) are required to pass 60 hours of practice with a mentor, which is another teacher in the school. Furthermore, the school has an open-day policy every Thursday, when colleagues from other schools, parents, and researchers are invited to come and observe classes. Being relatively unique as a school that is funded by the government and running an alternative curricular programme, the principal notes:

> "Our programme is really supported, it doesn't matter what the national or local government. It seems that everybody likes it very much, so it doesn't matter who is in charge, we have been always supported. And we are also open to everyone, so since we are always trying to make our methods better, anyone can come and see how we are doing. We don't close the doors. And we are open to new methods too. In 1993 we started with the integration and we were the first to try to do it in Hungary. The law allowed it and when nobody knew how to do it, we just tried and worked on it. I think this is why the politicians and people who work with education were happy, to see that one school wants to do it. Because it was also the agenda on the European Union level, but in Hungary it was very new and everyone was afraid of it" (Principal, School 3).

The principal continued with saying how important it was for the school to place the child in the centre of attention and to make everyone feel good about the school and the practices in the school. Anecdotally, one of the interviewed teachers had a piercing on her face and she pointed out how, after she graduated as a teacher, she could not find employment due to her piercing. Normally, as she said, the school leadership would require her to remove the piercing even at the interview stage which she was not happy with. School 3 was an entirely opposite experience and she was accepted and allowed to keep her characteristic jewellery piece. The same mechanism of acceptance is delivered school-wide at all levels, and children with all their differences are accepted in the same way.

To follow the specific differential curriculum, 10 years ago the school ensured a grant to publish their own textbooks which were developed by the school's teachers. The textbooks are a synthesis of worksheets and articulated lessons that can be used by teachers and students and they follow differentiated educational plans which help in implementing the school's distinctive programme.

Finally, in 2018 the school was granted funding to develop into secondary education provision and the principal explains: “In Hungary there is no alternative secondary, there are some but they are private and our school is not. And how we will do it, well, 27 years ago we didn’t think that we knew what can be established, now we know what we want and how. We feel the methods and thinking is more important and we can continue. Of course, we need teachers but we can do it. Deja-vu! We will sit until 8pm again and talk about how to do it.”

5.2.4 School 4

This Budapest-based school offers bilingual Hungarian and English educational provision at the elementary level, and it is another school that uses the Complex Instruction Programme. Unlike the first school (School 1), the interviewees noted that they have modified the complex instruction methodology to suit the contextual reality of the school, even though the end goal has remained the same – which is the status change.

The ideas truly started developing on the terms of borrowing good practices, as the principal explains:

> “Ten years ago, there was only 200 students in the school and the numbers were decreasing. We managed to turn it around and now we have approximately 600 students. We started to monitor the social setting of the school, the expectations and what are the demands of us as a school. Following this monitoring process, the face of the school formed and the results became evident with more enrolment. But we also borrowed what works from other places and made it suit our needs” (Principal, School 4).

However, it was not always a smooth ride and the principal admits it was not always easy to convince teachers of working in certain ways, thus there was a high level of staff fluctuation. He explains:

> “So, we found a method, but then we needed to find teachers. In the last 10 years about 120 teachers came and left because they could not handle it. They didn’t have this kind of view point and they didn’t want to change. They didn’t accept the heterogenous viewpoint. And besides this, the organisation of the school remains. There is the method, the teachers and the organisation to complete the whole picture. This is my favourite point, improving organisation as I do not like being stuck on one level, we have to continuously improve ourselves” (Principal, School 4).

As mentioned, the school has an elaborated monitoring process and a number of measuring tools that help understand the success of the programme as well as the future perspectives and directions. Through a form of distributed leadership, the additional school-related work is done by teachers in smaller teams. The results of their evaluations point out to necessary changes

which are then discussed and suggested to the teacher community, and this mechanism is the main source for school improvement.

On the other side, the school does implement their own complex instruction method, which means that the new-coming teacher is gradually inducted into the regular work of the school. The principal pointed out: “we have a mentoring system and some of our teachers are also trainers, so they can keep an eye on newcomers. Maybe a better word is tutoring. We have regular [in-house] trainings, just two months ago we had 60-hour training. And you do need to pass this to be able to hold this kind of lessons” (Principal, School 4).

As noted in the previous quote, some of the teachers also visit other schools and provide teacher training on the method. But interviewees from this school agreed that it is not all about the method, but primarily about the viewpoint of teachers and school leaders. They add that while using complex instruction is an important part of the success of their school, the most important is how “educating is viewed” by the staff.

The school is settled in a highly diverse socio-demographic area and some of the students come with one or both parents of non-Hungarian descent. It is in such a case that complex instruction helps in integrating and building bridges between the students. The classrooms include a very important message written clearly and visibly across the wall which follows the philosophy of the method: *“Mindeki jó valamiben!”* (in translation: *“Everyone is good in something!”*). The principal notes:

> “If you take a look at the school, it is based in a special location and people around are very heterogenous. Different people are all around, people with disabilities, with very difficult background, with many different special talents, with different cultural situations. This is why I think we need to focus on inclusivity and pointing out that we are all able to contribute and everyone wants a good school” (Principal, School 4).

The school has managed to successfully apply for a grant in 2018 and plans to work towards upgrading the complex instruction methodology in terms of digitalising parts of it. The principal elaborates: “So, the digital technology and complex instruction can be connected and it is going to be *digi-KIP*. Because the method is working and we and include digitalisation to it. We plan some digital book materials and an app for it. So, for instance, the presentation part of the method can be done in PowerPoint or Prezi and not on flipchart anymore.” (Principal, School 4).

5.3 Teacher practice and teacher learning

The following section presents data and provides analysis of the teachers' everyday practice in the innovative schools and they ways they conceptualise their learning. The structure is based on the elements identified as main aspects of their work, including preparation, taking up additional roles, collaboration with the colleagues, finding solutions to pedagogical problems, and dealing with innovative approaches. It also encompasses the aspect of their emotions regarding the job and the element of mind-change which is closely connected to their work with innovative solutions. Finally, the perspective of leadership is added as an element that substantially contributes to learning.

5.3.1 Preparation and duties

Hungarian teachers in innovative schools have the same basic duties as those elsewhere, including development of lessons, working on curriculum, logging lessons into their diaries, etc. In addition to this, the four visited schools had extra tasks which usually related to the specific curricular approach or to partaking in functioning of the school. Even though preparation for these duties in all schools was reported to take more than the time they have within their paid jobs, none of the teachers complained that this was a burden. As it is seen from this excerpt, teachers use their private time to manage the workload:

> "I still have 82 lessons that I need to put into the electronic form, the diary. It is probably going to be a weekend job" (Teacher 11, School 4).

Actually, the teachers that have been interviewed in this study consider working around the clock as part of the profession. As the teacher points out: "You can do this method only if you really catch the sense, and once you have it, you cannot leave it behind in the classroom. Because this is not for ourselves this is for the kids" (Teacher 11, School 4).

Several teachers have noted that due to the method they use, sometimes the inspiration for the class comes while doing job-unrelated activities, like washing dishes or going for the walk in the nature. This has been an interesting moment in the study pointing out to the possible need for diversifying teachers' activities; in working with innovative methods the more of different experiences the teachers have in their private and professional life, the more ideas they accumulate for their classes. This was reflected with several interviewed teachers who reported engaging in hiking, traveling, physical exercise and engaging in their hobbies.

In addition, most of the teachers agreed that the preparation gets significantly difficult at the beginning and, naturally, it eases up with practice and routinisation. They also mention that while 24 hours at some periods does not seem enough to finish all the tasks, a helpful way to get everything covered is through intelligent school organisation where "everyone knows what they need to do", as this teacher puts it:

> "I think in the school we can solve problems because we have a person responsible for every theme or topic. So, for instance, my colleague is responsible for wooden games, which means she will make all the learning [material] about them in a song, and this is her task to do" (Teacher 7, School 2).

In the school which implemented pair-teaching, collaboration in preparatory work was even more evident: "Everyone knows who is in charge of what. So, I will do the cooperative part of the lesson, and I ask my colleague to handle the copied material. And with the special need child, we have to keep in mind that one of us has to prepare special tasks" (Teacher 9, school 3). Teachers working in pairs noted also that they exchange telephone calls and e-mails after work on daily basis as they are doing their preparation.

In fact, teachers were aware that the amount of preparation needed to implement non-traditional teaching method was actually one of the basic reasons for their colleagues in other schools to stick with the traditional teaching. This was evident in several answers:

> "Yes, they [traditional teachers] don't like it because he or she cannot leave the school at 2 o'clock. You need to stay longer, and it takes much more energy" (Teacher 11, School 4).
>
> "The [traditional] teacher comes in and after 45 minutes goes out. And this is it. We spend more time with our kids. We also add a half an hour in the morning to talk to them in a circle. Here we get to know their problems" (Teacher 10, School 3).

While most of the teachers did mention the distinct difference between the preparation and workload of the "traditional" teacher and their own, in neither of the cases was this seen as something unwanted, even though additional paid time for preparation was seen as something that could help. Preparation plays a specific role in teacher learning, especially when working with innovative methods, as teachers tend not to rely on pre-set pedagogical formulas. They are bond with discoveries of their own and they heavily lean on their capacities for creative, out-of-box thinking, thus employing their prior learning, pedagogical skilfulness, imagination and curiosity to find the best classroom tasks. This causes abundance of expansive teacher learning that gets stored in teachers' experience as valuable knowledge of practice.

Furthermore, on top of preparing their classroom work and focusing on the innovative pedagogical approach, all interviewed teachers had additional roles in their schools.

5.3.2 Special roles

Due to how the four schools were organised, teachers' roles extended beyond classroom duties. Participating in teams that deal with some of the organisational or functional tasks of the school was not something unusual. For instance, in School 3 the interviewed teachers were all part of the team that is working on conceptualising curricular and organisational aspects of developing a secondary education provision. Since Hungary does not have a differentiated and integrated programme for secondary schools for special education needs, this task is left for the staff of the school to deal with, and they mentioned that most of their upcoming holidays will be dedicated to developing a secondary education programme.

In School 2, on average each teacher is involved in a special task group, helping with organisation and implementation of school strategy. The school has a complex system of measuring and analysing data from different stakeholders, including students, parents and teachers, and as such rely on in-house capacities for both collecting, evaluating and monitoring the school progress. This was also a case in School 4, where the school particularly looks at how the socio-demographic situation changes the ways the school operates and develops. Some of the interviewed teachers held a role of leaders of the measurement teams, and next to this some of them also had roles as mentor teachers. In this case, the role implies working with another teacher which is usually a novice, guiding and inducting them into the profession, and providing a knowledge base required to start their own teaching practice. In the four innovative schools, the mentoring scheme was even more important, as this is the way to also prepare new-coming teachers for the specific pedagogical practice that is not taught at the university level. The new-coming teachers were sometimes novice teachers but sometimes teachers with previous teaching experience.

All of the schools involved in this study have regular "open-door" days, which means that teachers from other schools can make a visit to one of their classes. This might not seem as extra work for the interviewed teachers, but they did mention this as an additional function they have, especially in the case of School 1. Furthermore, the teachers make it as part of their practice to internally visit each other classes. In larger schools, like School 2 and School 4, this is a practice that is placed within the organisation of teachers work.

Next to this, since the innovative techniques that teachers use are not easily accessible in Hungarian context, most of the teaching material is prepared by the teachers themselves. This is probably best visible in School 3 where the principal ensured a grant several years ago to print a limited volume of books that could be used for the specific pedagogical approach the school is following. The work on these school textbooks was something teachers additionally took on themselves, collecting and collating material they produced or borrowed from other good practices. In other schools, such similar material is often shared among colleagues on individual basis.

5.3.3 Teaching other schools

All four schools were known nationally for their successful innovative working methods, therefore they are all frequently visited by teachers from other schools. However, in particular cases, the school staff from these four would go out to other schools in order to teach other teachers about the innovative methods they use. This is especially the case with School 1 and School 4, which both implement a method called complex instruction. The teachers who act as trainers in other schools do mention that it is not always easy to persuade traditional teachers to try out a new method. One of the younger teachers that was interviewed noted that quite often her age is a difficulty too:

> "There are some difficulties concerning my age. Some say how could I give any advice with only 4 years of experience while they have 30 years. In one case, I had a teacher bring me a 30-years old book for the class [curricular plans] and he read it out to me trying to point out that there is nothing wrong in it. So, yes, you have to be kind in these situations and say that those are very good, but trying something new does not hurt. I cannot force them to use it [the method]. So, I have to interpret this as a possibility and I often use the word 'offer'. We are offering this method and you can take it if you want" (Teacher 2, School 1).

However, even with common scepticism, the two complex instruction schools do have a lot of success in spreading the method across the country. A teacher explains they start from what the traditional school teachers struggle with:

> "A very important thing is that we ask these [traditional] teachers to say what their problems are, and then we prove that the method is the solution. The usual problems are under-motivation, absenteeism, speaking badly amongst each other or with teachers, and there are usually some problems with parents that they do not support teachers in the school. My experience is that whatever the problem is, complex instruction can be a solution to it" (Teacher 2, School 1).

The interviewee continues with saying that teachers who decide to try the method are usually happy to see the results very quickly, although it takes some time to actually see the outcomes

in a more substantial way. The structure in which practicing teachers teach other practicing teachers about current methodological and pedagogical aspects is an extremely strong aspect of teacher learning for all parties involved. While it might come with some difficulties and scepticism, sharing practice and knowledge among teachers at this level provides much needed meaning as it relates to understanding the student learning and knowledge of practice that makes it better. These fora of teacher learning come as more authentic ways of expressing the struggles and reflecting on them, especially for the participating teachers. This is, of course in many cases true also for the teachers that are engaged in teaching, yet for them the learning can additionally take a meta level. Since the teachers teaching other colleagues already have the knowledge of the method or pedagogical approach, their attention moves beyond the productive type of learning and can arguably focus on tacit ways in which their peers communicate, collaborate and acquire new knowledge. In a way, they learn about teacher learning themselves.

An additional feature of the interventions that School 1 and School 4 are implementing is that they create school networks. These school networks often communicate throughout the academic year and during holidays, both on individual teacher levels and on the level of the entire schools. However, formally, the school networks meet on an annual basis where they gather and showcase examples, and explore and discuss the practice of implementing the method. This serves as a place for teachers to share their experiences on a large scale, develop further their own classroom techniques and make significant connections with each other.

5.3.4 Teacher collaboration and teacher collectives

“I don’t really know (she laughs). It is a common faith” (Teacher 1, School 1). This was the first reaction of one of the interviewed teachers on the question related to teacher collaboration. She continued saying that it is rather obvious that collaboration happens and that quite frequently it is also very informal.

The teachers almost unanimously reported that they exchange their experience on daily and weekly basis and most of the discussions is focused on classroom practice, particular student cases, issues in learning and methodological aspects. To an extent, teachers were rather convinced that without collaborating the school would not be a successful learning institution, as this teacher pointed out:

> “This is really a collaborative community and we share our experiences, I think this is the secret of this method. If only one person would do it, it wouldn’t work. But because

> we are working in a team and collaborating on this, it is why it works" (Teacher 2, School 1).

Actually, in all of the schools the teachers explicitly said that without a will to collaborate with other colleagues a teacher would very quickly become isolated and this would negatively reflect on the school functioning, his or her own work and the work of the entire school staff. The best illustration for this came during the focus group interview in School 2, where teachers were given a scenario in which a new colleague comes to their school and wishes not to collaborate or join teams. Teachers were asked what would happen in this situation, and the reactions were the following:

> Teacher 4: You [the new teacher] would not escape.
>
> Teacher 7: You have to communicate if you want everything to be alright, with children and colleagues. You cannot avoid talking to the other teachers. They can show you around, they can help you how to do the administrative work, how to deal with the teachers of the special classes. So, all the time you'll have to communicate.
>
> Teacher 5: There is an organisational form for this as well. At the beginning of each school year there's a social gathering, it's formula in the structure, it helps teachers to get into the school after a summer vacation. And it's expected that everyone is cooperating. And this seems to work well.
>
> Teacher 7: Another idea how to integrate such a person is maybe to ask about an issue or a problem that is connected to his or her subject, in a way that it would help me in my class. So, I would make the connection between the two subjects.
>
> Teacher 4: It is also important for this person to be in contact with the others, it is good for his or her self-esteem, and not feeling isolated. So, it's a natural desire for a newcomer to be a part of the team. And this is where I come from that there's no escape, because at the beginning of every school year there's a planning. Here the core tasks are distributed, and each task is broken down into steps. For instance, organising in celebrations for the graduation. This task is broken down into steps. And it has to be accomplished. And this is something that is maybe not even written down but, it is a tradition. It is repeated from year to year, by semester to semester. And if someone does not have an affinity to this kind of tasks, he or she cannot walk through it.

The obvious reaction, thus, would point towards attempts to directly or indirectly involve the new teacher and influence the teacher's behaviour towards being more collaborative. Yet, it is also obvious that the teachers feel collaboration as a normal part of their profession, almost as something "one cannot escape".

In School 3 where the principal also actively works as a teacher, acceptance was seen as the essence of working together and creating a close teaching collective: "Working together as all staff, when we co-operate, it helps everybody. It helps us in the first place, and of course it helps children. We really work very close together. We accept everybody, as a child. And we

accept everybody, as a teacher as well. Somebody can be good in music, and somebody can be good in organising things. Somebody might have difficulties with her private life, someone something else" (Principal, School 3).

Collaboration as explained above is actually often seen as the best way to provide a safe and effective learning environment for the students, as much as it is a way to gain further tacit expertise. Teachers note that, especially in schools with smaller number of students, they talk a lot about the children and what their reaction to the taught content and classroom interactions were during each day. This was rather seen as unrelated with the innovation and method in use and rather connected to their work as pedagogues, as this quote shows:

> "We have to talk about partnership. We have to be on the same level. We need to acknowledge and work together to find the best way to develop a method for a child" (Teacher 8, School 3).

Collaboration in special relationships, such as mentoring and teaching in pairs, also brings better possibilities for solving difficult situations and supporting teachers who have only started their careers. This materialised as an evidence in several interviews, and the benefits of working closely together were seen as helpful even when there was no official mentoring role involved, as it was noticed in the focus group from School 3:

> Teacher 9: and we have learnt a lot, over the years I've started to work with her [pointing to the older colleague] and I had no experience. So, I was a total beginner as a teacher, and it was good to have somebody besides me. And she [the older colleague] supported me a lot and talked to me a lot, how you should do things and so on.
> Teacher 8: really?!
> Teacher 9: Yes really! You were my mentor!

Collaborative behaviour was one of the most important elements all teachers expressively mentioned, together with the ability and attitude to "change the mind" which is explored later. The teachers would note that those who are willing to collaborate easily pick up methodological aspects of innovative programmes and can more easily overcome any specific problems they have in the classrooms.

In some schools the collaboration and the closeness within the teaching collective was described as a family and these ties would then generate a feeling of belonging and ownership. The importance of these feelings is touched upon in a later segment, however, collaborations were not in all cases necessarily seen as based on familial and friendly emotions. In some interviews, teachers pointed out that this is just part of their professional work and behaviour,

as pointed out in this excerpt:

> "As for working together, there are special working groups and there are other types of collaboration, project-based collaborations which are very professional collaboration and this is reaching across subjects. Some of these products are [made] for funding. Reaching over subjects means different subjects working together, there is a type of professionalism here. People will not say 'oh, I cannot work with you'. If in a group or a project you need a biology or maths or art teacher, these people will come together and they will work" (Teacher 4, School 2).

Indeed, while at some places cooperation between teachers was explained as a good match between the colleagues, a friendly connection or family-like bond, in other places this has been seen as a natural and necessary part of teachers' professional conduct. In all cases this was closely connected to feeling of solidarity as it was summarised in this note:

> "If something happens, like what happened this morning [a teacher got ill], they will substitute the teacher that is missing. So, there is this team, and solidarity amongst the colleagues. It works well" (Principal, School 2).

Finally, in most of the visited schools, teachers would use social media, internet platforms and electronic mail to communicate and "easily share thoughts and material".

Collegial ties in teaching profession, regardless whether they were perceived as familial and friendly or as strictly professional, contain a lot of weight in how teacher learning is constructed especially in the environments that are highly dynamic and innovative. The gravity of these relationship has been wonderfully illustrated by Hungarian teachers and principals, and they add up to the emotional factors of a safe and supportive atmosphere that stimulates teacher learning. In particular, when teachers act united in taking up an innovative approach, they build better opportunities for individual and joint productive levels of learning and, more importantly, open the corridors of creative, expansive learning.

5.3.5 Finding new solutions and continuous learning

Most of the interviewees said explicitly or implicitly that they are continuously learning, even the ones that have worked with the same methods for years. The continuity in learning was often connected to finding out ways to tackle problems. While talking to the colleagues seems to be the most mentioned way of figuring out solutions, a few of the teachers did state that they rely on their own creativity and ideas they find on the internet. A few of the interviewed English teachers in particular mentioned abundant online resources and possibilities for subscribing to online platforms and groups which send out regular newsletters about new teaching solutions and ideas. The English teachers also pointed out that their university-based initial teacher

education was slightly better than the initial education of other subject teachers, as they noted that the university educators actually talked about different methodologies and alternative schools.

Sharing knowledge in terms of personal interaction was also mentioned, yet it comes with time restrain, as this teacher points out:

> "Sometimes I go to other teachers and I say 'this is a great idea, the kids enjoyed it so much, please try it yourself and use it in your classrooms'. We could do this even more, if we had more time. But unfortunately, time is limited" (Teacher 11, School 4).

As pointed out above, in many cases unsolicited advice was something teachers said was a normal practice, but many of them also pointed out that they and their colleague do not feel ashamed to ask for help with something. They would point out that in other, more traditional schools, this practice would be less frequent and rather unusual.

There was a number of teachers and principals that mentioned attending additional courses at the university or in other institutions, as for example these two claims point out:

> "Four years ago, I did a university level training on the topic of autism within special education at ELTE because of the integration policy which was the state level policy. So, we have three children that live with autism, it is the functional autism. And there are many more that have the features but have not been diagnosed. I did this course as we didn't have specialists [in the school] and we didn't know how to deal with the integration policy" (Principal, School 4).
>
> "I went to ELTE University for a course on cultural leadership, so I have public education leadership qualification. I have a certificate in it, but I think papers and certificates are not enough, you have to have the personality. The personality is the key. It is also very important to renew yourself" (Teacher 6, School 2).

While several of the interviewees mentioned they had formal qualification in different "special subjects", such as leadership, dealing with particular kinds of special education needs, environmental awareness and the so-called happiness programme, two main observations were brought up. The first indeed reflects the last part of the second quote above, that qualifications are not always enough and that one needs "personality". Other interviewees also mentioned this in terms such as "attitude" or "ability to change the mind". This characteristic was present in almost all interviews. In this context, personality is brought in as an ability to renew which means continuously learning about the profession in terms of pedagogy, subject related knowledge and the social situation of the students.

The second aspect of having formally recognised qualifications and diplomas are connected

with the career progression scheme. For a seasoned teacher that has obtained her or his formal degree 30-40 years ago, the college diploma might seem insufficient in order to progress even with the lengthy successful career. One of the teachers who worked in the profession for 54 years pointed out that she has recently finished her "diploma work" and her work was about how the innovative methodology changed the school in the last 10 years. She did this to formally get the recognition as a Master teacher, and then she adds: "I have three diplomas so far, but none of them at the level that allows me to continue further. The long working experience is not recognised as equal to a university degree and the fact that I have three college diplomas are not helpful either. I am stuck in the system and I would gladly exchange the three diplomas for one university degree" (Teacher 11, School 4). Thus, for getting to the level of Researcher teacher, one would need to have, or be enrolled in, a doctoral degree. This slight inconsistency within the progression system indicates to a systematic lack of recognition of prior learning at a level of the university degree.

While recognition and external reward system are important, most of the interviewees were rather concerned with providing the best education in the current system. Many of them frequently attend classes of their colleagues, predominantly for inspiration and better understanding of the pedagogical method.

> "I attended many, many classes. I saw how my colleagues were teaching and this was very helpful. It was very important, it was a good means for me to learn. We had a training, a three days training where we learnt about the methods and about the organisation of the class. I don't know, I was very motivated. I found it very interesting and very creative" (Teacher 9, School 3).

As mentioned above, all of the visited schools have their own training which is obligatory for the newly appointed teacher to pass in order to start working in the school. This is done with a premise that the university, and the previous experience in other schools, is not properly preparing teachers to immediately engage with the innovative methodologies.

For more experienced teachers, it only made sense to continuously learn about new solutions and change the practice that is faulty. One interviewee summarised it in the following way:

> "When you are not successful in what you do, you'll have to find another way. You'll have to find a way to get to these kids. I teach for more than 50 years and these kids are completely different than those that I used to teach back when I was young. They're not better or worse, but they are different. And this is why we need to change as well. And we don't realise always this, which is a problem. But you do change when you see other practices. I do go around a lot [as a teacher trainer], and I see other schools in the country. And some of these schools they still use the traditional ways and I get shocked.

They are stuck somewhere in the past" (Teacher 11, School 4).

The discrepancy between innovative and traditional school that is mentioned in the previous segment is caused by many things, but from what the quote pointed out, many teachers have not seen different methods, they have not been convinced that these methods work or they have no desire to improve their own practice. And in many cases the interviewees connected these with the inability of some traditional teachers to change their mindsets. Among the interviewees there was a strong conviction of the benefits for continuous learning as elegantly said by this teacher:

> "I consider it is a good thing to have the opportunity and try out new things, to continuously renew my everyday practice. As the children are changing, and the conditions are changing, you need to adapt continuously. And this environment [in the school] helps for reviewing new stuff" (Teacher 7, School 2).

As seen in the last paragraph and also in the previous one, the point of improving the practice and engaging in continuous learning is strongly placed in connection with the fact that the world and the students are not the same as they were a few decades ago. The point at which teachers do engage in finding new solutions is quite obviously an evidence of their capacities to learn, yet in many cases that were presented above, this goes beyond simple reproductive learning. The need to explore new solutions for their practice inspires expansive learning that is also effective to the point of determining the exact skills needed for executing novel pedagogical routines.

5.3.6 Dealing with innovation

The necessity to change in how teaching and education is done due to the changing conditions of the world and the students was a driving force for almost all the interviewees. Many of the teachers noted that in the past a successful classroom practice was considered the one that has children obediently sitting and complying with the teacher's instructions throughout the duration of the class. In their reflections, this would benefit in creating good, obedient workers and citizens. Today, many teachers pointed out, the situation is different. The future holds unclear and more diverse possibilities and the task is to stimulate students to critically observe social phenomena and actively construct them. Thus, in the words of one teacher: "As I see how technology develops and compared to that, Hungarian education is somewhere in the very past. I was in the elementary school sometimes in the 90s and back then the good child was the one that sits at one place and is silent. And it was very difficult to find ourselves and find where we stand in the world. With new methodology we make these kids [in the school] active in

asking and giving help, and they will be more capable to find themselves" (Teacher 2, School 1).

In connection to this, quite often and even in larger schools, teachers would say that they try their best to actually get to know their students in a more comprehensive way. This means shifting beyond from what a student is achieving in terms of academic success that often comes with labelling students as good/bad or successful/failing. Instead, interviewed teachers tried to understand the child in its family background, aptitude for different subjects, ability in different types of intelligence and from the way they make social interactions with others. The following quotes provides an idea on how important this is:

> "We know every child here. It is a must here. This is also why we have only one class, as with one class you are able to know each child personally" (Teacher 8, School 3).
>
> "You absolutely need to know children in a comprehensive way. And this is a lot of energy. You really need to know your kids. If you prepare the lesson like this [knowing the students] you also need to think outside of the box. You cannot close your doors [of the classroom] at four and not think about it. I see inspiration in many places and everything can be useful for developing a lesson. I am all fed up with the traditional lessons. So sometimes I take cards to the class and they engage in lesson like that. Or digital exercises. Anything to make lesson more exciting for them, because most of them are bored and not learning if you just teach in front of the blackboard and with a chalk in your hand" (Teacher 11, School 4).

While most of the teachers found that the key for successful implementation of their methods relies heavily on their understanding of their students, all of them admitted that this involves a lot of energy and time. One of the teachers commented that these are actually two different things when dealing with how one approaches their role in the school. She noted: "energy and time are two different things. The time factor is what you have available, but investing energy into the work results in happiness of children and satisfaction of parents and this is rewarded by more energy" (Teacher 5, School 2).

Also understanding what are the best ways to stimulate learning among students today was noticed several times. As one of the interviewees talked about her work she mentioned:

> "This is a very creative work, and the more you do it, the more ideas you get. The point is to have maths a little bit different, to be more realistic and maybe something they could use in their lives. The 'normal' curriculum is still there, but it is connected to real life and a bit more like a game so they feel that it is fun. So, we connect fun in real situation and put maths in it. This is also why I asked them [students] whether they liked the class, because even if there are kids who hate maths if they enjoy themselves they will pick up more and this is very important for all of us. To make them enjoy the class" (Teacher 11, School 4).

As evident in the previous paragraph, the understanding of the reasons for changing the pedagogical method into something that is more appealing to students comes with strong conviction that "the method is there for the kids" (Teacher 9, School 3) and that learning is much more likely to happen if students enjoy the activity, have fun and can connect it with their real-life situations.

When dealing with innovative pedagogical method, majority of the teachers noted that the most difficult thing is the first period, when they need to start implementing it and when they need to set up everything. Many of them mentioned that it is valuable to have a mentor that is supportive and can show how things are done. And they all admit that even though the attitude to continuous learning is highly present in their work, making the implementation of the innovative approach successful comes usually when they become part of the daily routine. Efforts to grasp the innovation as quickly as possible and routinise some of its elements offers the optimal adaptability corridor towards becoming an adaptive expert. As such learning to balance with the emotional struggles of unknown results and brilliance of professional expertise brings the potential transformative element of learning to teachers.

This difficulty of starting with and changing the old routine, and working towards perfecting the new method to the level of fluency was also spotted by some principals of the visited schools.

> "Even though I can say a lot of great things about my teachers, this group is not always very open and happy to change. It's a rough comparison, but if we swap teachers and IT people in how they work on a daily base, if IT people would on average work like teachers nothing would ever happen in the world of computers. IT people are flexible constantly. I would like all teachers across the country to show the same flexibility" (Principal, School 4).

The idea that teachers need flexibility and aptitude for continuous change, is something that was shared by the teachers too and this is discussed in the next section.

5.3.7 Emotions

"I like my work very much and I will tell you about it!" (Teacher 5, School 2). The way teachers talked about their work, and the convictions they had about the education they are part of, contained a lot of emotions. When asked whether they feel satisfied at the end of the day, most of them expressed the love for the profession and for the students, particularly when they see that the students are feeling pleased. These two excerpts give a certain feeling of what several interviewees mentioned:

> "We love our job and we see the effect. We work a lot, maybe more than the others, but we are satisfied and we can see the effects. We really love it. Really love this school too. On Thursdays it is an open day and teachers [from other schools] can come and visit the school, and the feedback is very positive. This is good for our motivation as well" (Principal, School 3).
>
> "It makes me happy to see the smiles on the students and then I know I achieved something. The best thing is when they don't need me anymore [because they are autonomous]" (Teacher 10, School 3).

Many also connect their emotions of satisfaction to the school and the teacher community, specifying:

> "It is so fortunate to have so many people here. I also visit other schools as a trainer. And I'll see schools that are hopeless and with lots of burnout. I'm proud to work here, and I like how we always inspire each other. We get impetus for moving forward. A lot depends on leadership, and it is never one person only. They always find the way to win people over" (Teacher 5, School 2).
>
> "I feel very good here because I can do whatever I want. I could organise a project on animals and just talk to my co-teacher to see how we could do this" (Teacher 9, School 3).
>
> "They respect me here and I feel happy about my job here. I love what I'm doing. In the meantime, I do have side jobs because of my lifestyle and the financial situation is not very good. But I know I'm doing this well, when you feel it is good – it is good. I wouldn't like to work in a job where I would wake up and say I hate myself" (Teacher 11, School 4).

The sense of accomplishment and acknowledgement that the teachers are doing something worthy was mentioned in many of the interviews. In a focus group in School 3, they noted that they feel proud to know that their students get employment, can actually work well and cooperate with others in the "real world". This creates a feeling of "giving something good" for the students. In other cases, the accomplishment was related to the numerous tasks and extra duties that need to be taken care of, as evident in this quote: "I am happy when I feel that the planned activities are done. Also, when the extra work is done and the state of the pupils is good, they are focused and happy" (Teacher 7, School 2).

In several cases, teachers pointed out that they are feeling complete due to the evident self-development and changes that they can observe in their professional lives. They noted that the success in their work with students makes them feel good about their role and they feel respected in the school and community. The support that they get from other teachers and the school in terms of how it is organised to provide learning opportunities was an inseparable part of their narrative.

Feeling joyful, satisfied and content about one's work is a major influence to both teacher performance and their approach to further learning. While classroom issues can stimulate teachers to learn how to solve them, the perspective of "joy for learning" brings a dimension of learning as an enriching activity, and as with any similarly satisfying action, one tends to engage in it more. Next to this, emotional support that teachers get by knowing that they operate in safe spaces that allow them to experiment and provides permission for haphazard trial and error also better stimulate teacher developmental and transformative learning.

5.3.8 Mind change

In so many ways and in almost all interviews, the need to change the mindset was mentioned as crucial. Some of them called it the attitude towards changing or the attitude towards renewing oneself, and in these segments the interviewees did not only refer to the practice but also to personal and professional traits. The following quote captures this and more:

> "I think the most important is changing your viewpoints. You are not teaching method or material, you are teaching kids. The goal is to have all kids involved in the group. And the kids with lower status in the group need to get involved with the exercise. There are many ways to say that a kid is in a lower status, by social status, or academic status, or even popularity in the class. The aim of these classes is to unify them, to make them work together and to see them with different abilities that are helpful. Handling the status is much more important than giving the math knowledge. These lessons are only 10-20% per year, the rest is more traditional. But those who really use the method, it changes you a little bit, or much more than a little bit. So, you don't really do frontal lessons anymore. You mix a little bit. The teacher changes inside and has a completely different point of view" (Teacher 11, School 4).

The change most specifically comes in the way the teacher role and teaching are perceived. Thus, as it was often explained by teachers themselves, the goal is no longer necessarily to teach the students about in-depth knowledge of a specific subject but rather to make them feel the joy of learning. One of the interviewed principals confirms this by saying: "This is our aim, to reach student autonomy. We want them [students] to decide if they need help and how they want to learn. Because it's his or her task to learn. We can help them, but we want to teach them that this is their responsibility" (Principal, School 3). Teachers partly agreed that the way to do this is also to show students that they, the teachers, are lifelong learners, that they also enjoy learning.

The "modelling factor" was mentioned also in several interviews as teachers explored their roles being more than "just a teacher". Many noticed that due to the social surroundings of the children, or due to the change of the social background, teachers have to sometimes perform

roles of councillors or, as several mentioned, as the second parent. Here the role of school as such was also brought into perspective as this teacher explains:

> "It is not about teaching, it is about educating. So, I'm teaching maths, but I am also educating the child as well. How to behave, how to solve conflicts and problems, how to communicate in an open way, how to express themselves. To help them socialise" (Teacher 6, School 2).

This both connects to teachers understanding their students and emphasising their ability to educate, and for the latter most of the interviewees would make a connection again to the attitude towards their own profession and towards learning. The following quote points exactly towards this: "I see this very commonly, this attitude for openness and curiosity, and also the love for the profession. Most of the good schools have teachers who really like their work, not just to teach but to work with children." (Teacher 5, School 2). The added value in the last excerpt phrased as the emotion of "love the profession" was indeed significant, and therefore is further explored in the next section. However, the responsibility of working with children was mentioned also in another occasion while exploring the issues of teaching older teachers and preparing them for using new classroom methodologies. A teacher who also acts as a trainer in other schools explained that he did have cases where older teachers, especially those that are just few years ahead of retirement, would reject investing time and effort in learning and using new pedagogical techniques. The interviewed teacher explained that in such cases he would boldly call upon the responsibility for the generations of children and that "it might be only 2-3 years for you [teacher in pre-retirement], but for them [students] they are losing 2-3 years of quality education. So basically, I tell them [teachers in pre-retirement] that they are almost robbing their students of quality education" (Teacher 3, School 1).

This change of mindset from delivering the curriculum to being responsible for providing the best quality education for students was an underlying note in many of the interviews. Some of them also commented that (traditional) teachers who do not realise the largeness of the task that teaching profession holds can also suffer from burnout as they enter the profession thinking it is an easy and calm job. Many of the interviewees essentially stated that they appreciate the dynamics that their job offers and that this comes as part of being in their particular school environment. As this teacher adds: "For me the change of the point of view was very important thing, the change of perspective. It was a milestone, a revelation." (Teacher 7, School 2).

Finally, in a few of the cases the interviewees pointed that due to the change of mindset which helped them see their job in a different way, they became more conscious in planning the

lessons, and overall thinking of how they will reflect in future of the students. They stated that this supported their understanding of why some elements of the classroom practice or curriculum are there and if not, why they should make it happen. In particularly those working with special education needs noted the importance for both them and the students to change the perspectives that are deeply ingrained in the society. As the teacher explained:

> "We need more sensitivity. It is good that we are different and not robots. We talk about these things every year. About the disabilities. The teachers need not to pity the student but truly to like working with them. Because they [the disabled students and the other students] observe the behaviour of the teacher. We need to have these discussions and we need to change the behaviour. Because we also need to change the society and how it looks at disability" (Teacher 10, School 3).

The perspective of mind-change as touched in the last quotation and several previous ones, is strongly connected to teacher transformative learning. The fact that Hungarian teachers became exposed to, and emerged with, educational practice that is innovative, provides a strong opportunity for them to learn about all of educational processes, including about themselves as important actors.

5.3.9 Key factor that influences teacher learning: Leadership

In the principal's office of School 4, there is a map of the world above the entrance. It is twisted and placed upside down. The principal points to it: "It is the world upside down. And this is because I see the world upside down". This daring action to change the perspectives in the established system is a driving factor of leadership in the four Hungarian schools, and quite often this has been also projected to the rest of the teacher community.

As noted previously, leadership stands for a very important factor in schools that were visited during the research, yet the leadership style and characteristics varied to a great extent. In many cases, the interviewees noted that leadership was important, as it was evident here:

> "Of course, we need our principal. She is a great leader, and without a good leader it would be a chaos. But also it is within you, that you have a duty, you have a thing to do" (Teacher 9, School 3).

The notion of duty and distributed leadership could be briefly noticed here, as in other interviews. When the teacher mentions "it is within you" she specifically means that the leader is not the only person in charge of the successful running of the school. In some cases, this was very distinctively pointed out:

> "There is a wider circle of leadership, this is all the heads of the subject groups, and they meet every second week to discuss questions. And if there is something that can be taken further, these heads can discuss it, so we only need to present it to the leadership" (Teacher 4, School 2).

Distributed leadership provides a wider and more diverse set of tasks for teachers, which positively benefits productive and creative learning of teachers. By taking leadership roles, teachers get exposed to obligations and problems that are not narrowly connected to classroom management and pedagogical approaches. The knowledge they gain here might not always benefit their classroom performance, but if looked from the transformative learning perspective, teachers with leadership tasks can arguably get better chances to engage with diversified professional learning.

While all school indicated to a successful leadership, the principals of the four institutions all had slightly different approaches to how they manage, lead and organise their work and this was reflected in the running of the school and the overall atmosphere. Particularly in the case of bigger schools, there was a greater sense of structure and organisation, even when it was rather invisible. In smaller schools, such as School 3, there was a greater sense of familial ties and friendship bonds that seemed stronger than the organisational aspects which were still present.

Another common trait was the sense of pride that was implicitly or explicitly stated in almost every interview. The pride that is associated with the school in some ways comes from the feeling of ownership and success, which is very carefully and consciously developed by the leadership. The interviewees did stress this in the following quotes:

> "All the decisions and all involvement are made together. Or at least nearly everyone needs to agree. For example, if someone new joins, they will visit the lessons and do the 60-hour training. There will be someone there to help them. And as we now embark on the secondary school project, we decided together who wants to work on this, or any other project. It is absolutely up to them, and they join very freely. And everyone is involved, so sometimes there is a question: who makes the school running?" (Principal, School 3).

> "The thing is that everyone owns the school by being involved, and if you think it is yours – you will do everything to make it work" (Teacher 9, School 3).

> "They [the government] tried to do it in Hungary [enforce a curricular reform to teachers], but because it was forced the teachers stood against it. If the teachers work together with us [school leadership], and when we even have the agreement from the parents, then the change is not forced. And this is when it succeeds" (Principal, School 4).

An anecdotal illustration of building a community in which everyone feels to have a contribution, thus creating a sense of ownership and purpose was described through this graphic excerpt: “There is a Hungarian novel, I don’t know if you know it. It is called *The Paul Street Boys*, and there is this group of boys. And one of them is very weak, he has a very low status among the boys. And I cannot translate it, but there was a teacher like this in the school and she was very focused on a minor thing that no one thought it was important. So, the task of the leadership was to find a way, and a value in this teacher’s interests. And to make others realise and see the value in it too. It was a small thing but it makes large difference at the end” (Principal, School 2).

Interviews also indicated that the leadership in these four schools was perfectly clear with strategic direction of the school, and in all cases that heavily implied placing the child into the centre of the practice. Moreover, that also enabled the schools to have a strong idea of all others aspects, including the kind of teachers they need or the type and amount of funding they should apply for. This is pointed out in one teacher interview, but had also appeared in other interviews:

> “The leadership is very conscious and very strategic about how to find grant proposals that the school can apply for. And they already have certain people in the staff who can do these things, who can participate, so they think of each colleague and how they can be good or useful. It’s like human resources. They monitor grant proposals, to find those that are suitable for the school and for the financial situation, to get more resources for the school. They motivate the teachers and their staff to take part in further training, and they also propose further training that teachers can take part of. It is thinking ahead, and also strategic thinking. And the feedback is important to them” (Teacher 5, School 2).

The level of dedication was also presented as an important element when the interviewees described school leadership, and some of the principals valued the same characteristics in their teachers. In particular, the principal of School 4 noted that even at the recruitment stage, he focuses on the character of the person rather than the formal qualifications and knowledge. He tries to understand how the newcomer will fit in the school and he points out that he prefers “teachers with lots of energy”, those that are capable to invest themselves and are open to new experiences. In the Hungarian context, principals that act as dedicated leaders acted as positive role models for the teacher community, usually inspiring continuous learning and curiosity among the teachers.

The leaders of all four schools were also very conscious of the importance of a comprehensive and continuous approach towards how the school is managed and organised. Therefore, who is going to be the successor was an important and difficult question, as pointed out in one of the interviews:

> "The thing is how to find a best successor. One is very good in managing things and the other is very good in quantitative stuff and assessment. But when my predecessor selected me she saw humanistic characteristics in me. And while the system is working well, this is still not rooted within the system. I know the feeling of the community, some kind of spirit, and I'm trying to develop it and maintain it. I would like it to be sustainable. I do emphasize the human connection. Like a community that takes care for each other. It is very difficult to be a leader, and be part of the system for 30 years, and then you have to leave and you have to find that person that you think will take care best" (Principal, School 2).

For both the principals and teachers, the success of the school together with the satisfaction of the teachers was a direct consequence of the leadership style. And interviews to a great extent recognized that the role is not an easy one, as this teacher adds: "I am sure it is up to a good leader, one that does not get tired and that wants to keep it alive. Coordination is really difficult, because it's not easy to see the results immediately." (Teacher 3, School 1).

5.4 Country overview

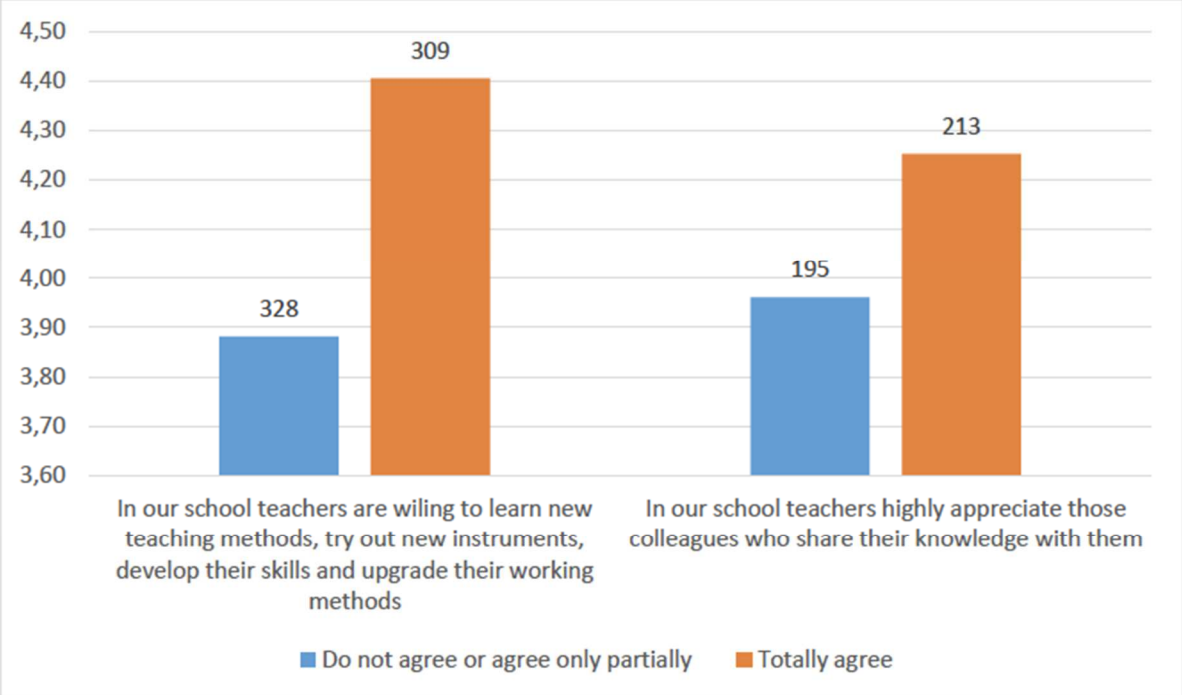
Almost from the very beginnings of popular education in Hungary, social and political influences which brought about different educational laws have been an influential element for teachers and schools. The country has for a long period of time tried to establish its own rule over the educational provisions and the most important of the factors was the teacher communities. For instance, the significance of teacher collectives in the war for independence in 1848, as well as in the later periods is an important point to be noted, as Kornis states:

> Hungarian teacher from entire country held a general congress to fix the underlying principles of a law regarding a unified public institution. Its measures were inspired by an extreme democratic and liberal spirit (1932, p. 23).

Similarly, education staff along with students played an important role in the revolution of 1956 (Ministry of Education and Culture, 2008). It can be, thus, argued that teachers becoming aware of different pedagogical approaches as well as the wider societal notions, started believing that education has to be better fitted in order to suit the society and its future demands. This tells about the connectedness teachers might have with the social and political reality of the country, that in fact extended to the point of their active social engagement.

Almost all schools in Hungary, including the ones selected for this study, have gone through somewhat turbulent past in the last three-four decades, with both small and drastic changes. It is important to emphasise that according to Halász (2007) the transformation of education in Hungary can be seen from nine different aspects including: (1) aims and functions, (2) management and administration, (3) financing, (4) structural issues, (5) quality control, (6) school autonomy, (7) teaching profession, (8) support structures, and (9) social aspects. The interviews provide a wide range of information on almost all of these aspects, particularly stressing on transformation in terms of teaching profession, school autonomy and structural issues. By looking at the primary data, there are reasons to confirm the existence of this ongoing transformation in the schooling system, in particularly from the perspectives of aims and functions, management, school autonomy, teaching profession and social aspects. It is argued by two important national studies that this current stage was substantially improved by schools' participation in educational reforms that targeted development of innovations. Fazekas (2018) and Halász (2018) provide highly valuable conclusions on the extents of both top-down reforms and developmental interventions that get generated at the level of school, concluding that the participating teachers have a higher inclination towards continuous learning and towards positively perceiving educational innovations. Figure 13 offers additional evidence.

Figure 13: The impact of development interventions aimed at curriculum improvement



Note: The scale shows the value of a school level composite indicator of "deep and lasting impact" of development interventions (min.: 1; max.: 6). Differences in both cases are significant ($p<0.01$). Number of cases are indicated above the bars.

Source: Halász (2018)

The higher intensity of appreciating knowledge creating and sharing opportunities, as presented in Figure 13, is also significantly evident in the data from four visited schools, which reported that these values are intrinsic to their functioning. This brings in two of the very important elements, namely collaboration and mind-change. The interviewees in this study commonly reflected that they consciously abandoned the idea that a teachers' job is to teach in solitude, behind the closed door. Rather, the value of opening the classes for occasional peer-observations, discussing the pedagogical methods and exchanging ideas and material is seen as beneficial and inevitable for professional growth.

This also connects to how the teachers change their mindset about their own learning, primarily pointing out that this is a lifelong process. In Hungary, according to the findings of the two national research projects, more than 50% of schools have participated in development programmes that aimed at improving teaching and learning. These development interventions commonly had training programmes and among the surveyed teachers 70% reported that they took part in such trainings. A striking third of them also noted that in their trainings they were in charge of creating their own pedagogical tools and new curricular elements, and devising pedagogical methods (Halász, 2018). This was implicitly and explicitly the case in all four schools and among many interviewees in this study which did note that they would regularly devise and change elements of their practice. Furthermore, this would always be in tight connection with their analysis of the changes in social structure of their student bodies. The notions that the society has changed and that the students are different than previously, as well as the mounting pedagogical idea of delivering student-centred learning opportunities, have been noted as the main drivers for developing new pedagogical solutions.

It can be also argued that the sense of professionalism and strong emotions towards the profession play a significant role, and the innovative method only makes this bond stronger and more meaningful. Teachers and principals expressed clearly that they go the extra mile because they truly like their jobs and working with children. They believe in the potential of educational provision that they are carrying and they feel satisfied with the outcomes, which in many occasions is solely connected to students' happiness and progress. Yet, the power of emotions was also mentioned in the opposite direction, where those teachers who train other teachers noticed that there is fear and revolt in some schools in accepting novel practices. The teacher trainers noted that in most cases it is a disbelief that the method will work, stubbornness

in changing the mindset towards being open to learn, and unwillingness to invest time in learning and perfecting the new practice. While these might be very specific cases in Hungary, they do generate further understanding of the mechanisms that stimulate teacher professional learning.

A significant driver for teacher learning was also seen through the specific school networks in Hungary. The continuous meetings and sharing of practice indeed support teachers in getting new ideas, re-examining their practice, and making connections with other teachers working with the same methods. Based on the previous research in Hungary, bottom-up school networks have become a significant mechanism for sharing practice. In Hungarian context these are closely related to bottom-up developmental interventions and Halász argues that "formal, non-formal and informal learning events built into these interventions became the most important terrain of teacher learning, more important than initial teacher education" (2018, p. 14).

Furthermore, the previous studies as well as this one, also provide evidence that those schools that managed to change their practices in previous decades by benefiting from both state-driven reforms and bottom-up interventions portray stronger capacities for learning and innovating. Such repercussions of school-based changes, for instance in the previous political regime, have been immense when it comes to teacher learning. First of all, just the mere fact that teacher collectives were given the opportunity to judge over their own curriculum could have significantly improved the image of teachers about themselves as well as that of the wider public. There is a high importance of a teacher being in charge of the educational processes in their classrooms as well as being entrusted as professionals to decide on the ways and contents of knowledge sharing. Secondly, decentralisation and school autonomy allowed for greater collaboration between school-based educational staff. Having prospective ideas and experimentations welcomed was another important element for increased teacher learning. Therefore, the implications of reforms as well as greater social and political changes have also reflected on how teachers conduct themselves as professionals.

6. Country case: Portugal

6.1 Portugal: the contextual notions related to education

6.1.1 Brief historical developments

It is important to understand that Portugal is one of those European countries that has a history of being a colonial empire. Having its colonies in both Latin America and Africa, Portugal inevitably embraced an attitude of being the white race, superior in development, on a "civilizing mission" of advancing the development of non-whites through industrialisation, spread of religion and basic literacy (de Sousa Ferreira, 1974). Yet, as any colonial power, Portugal was not different in terms of exploitation and severe racial dominance when it came to their dealings with colonies. In fact, the most influential event in the recent Portuguese history that made an enormous impact on education as well, was connected to the African uprising against the Portuguese colonial settlements and move towards independence in Mozambique, Angola and Guinea. The military coup d'état of 25 April 1974 overthrew the 48-years of authoritarian regime of Salazar's Estado Novo and, thus, opened the door to multiple new realities for Portugal. Particularly, the focus was pointed towards establishing the base for the so-called 3D promise: decolonialisation, democratisation and development (Sousa, 2000).

The Carnation revolution of 1974 reflected dramatical changes to the existing education system which was faced with multiple challenges stemming from the new demands. The change included drastic expansion of student enrolment, which brought a demand for building new schools and preparing, hiring, and training new teaching staff (Amaro, 2000). These new realities brought a need for an educational reform that will encapsulate new principles and provisions. Yet, such change waited for several political power alterations, and the Education Act was devised only in 1986 (Sousa, 2000) following few basic principles, such as universal right to education, real and equal opportunity for all, preparation for citizenship and lifelong learning, and social development (Amaro, 2000).

Intensive work on curriculum development followed the 1986 Education Act, and a research team under the name of Group Faústo was brought in to examine the criteria and advise the next steps. Based on several studies, the research group identified four critical problem areas in context of curriculum development (Amaro, 2000):

1. Inexistence of structures responsible for guidance, support and coordination of curriculum development process

2. Excessive centralism in decision making processes that hinder the surge of innovative experiments that can contribute to a better adequacy to local conditions
3. Lack of investment in the organisation of local and regional networks that could support teacher training
4. Unavailability of didactic resources and materials rendering the realisation of pedagogical guidelines impossible.

In addition to these structural challenges, the existing formal curriculum also contained a significant incoherence of aims and goals of educational provisions, a noticeable lack of vertical articulation between various grade, as well as absence of relevant and substantial criteria for selecting the content and areas of the curriculum (Amaro, 2000).

A revised educational law was brought forth in 1989 (Decreto-Lei No. 286/89) and it defined a cross-curricular area of personal and social education to be implemented at four levels (Kovacs & Tinoca, 2017; OECD/CERI, 1998), namely:

- In every curriculum area of discipline
- In interdisciplinary enquiry based on projects and themes
- In extra-curricular activities
- In a separate curricular element that is an alternative to moral and religious education, entitled “Personal and Social Development”

According to the 1989 Education Act, the curriculum, regulations and demands for every school are defined by the Ministry of Education. The curriculum “includes general objectives for each cycle, specific objectives for each discipline or subject area, sequences of content and recommendations for practice including pedagogical directions and suggestions for activities to be developed by teachers” (OECD/CERI, 1998, p. 45). Notwithstanding the fact that these policy provisions enhanced centralisation that was most evident in the areas of administration and curriculum (Roldão, 2003), according to Amaro (2000) it soon became evident that the implementation of an education act depends on more than just a curricular activity. Significant recognition was given to the level of teachers, students, families, and communities, and their participation in implementation of the curriculum, with an understanding that schools need to develop locally credible educational goals and an environment that will be supportive of overall educational provisions (Amaro, 2000). Therefore, a legislative act was set in place related to the school functioning (DL 115/A/95 – Autonomy of Schools) and under this provision,

schools were allowed to elect their directive boards, as well as other governing bodies, encouraging a stronger interaction with the local community (Roldão, 2003).

Indeed, the early 1990s brought even more curricular reforms to the Portuguese educational landscape. The learning outcomes of the primary and secondary cycles were set to be more coherent, better organised and the content more modernised. School autonomy allowed and encouraged more interdisciplinary projects led by the schools themselves, allowing for a range of ideas to flourish (Roldão, 2003).

The only aspect that remained outside of the school's decision-making power was teachers' appointments. This legislative act is still in place in Portugal and accordingly teachers are allocated to schools based on the national application system, which intends to guarantee greater equity (Roldão, 2003). Nevertheless, in relation to curricular matters, according to Roldão (2003) the government had a prescriptive and uniformed model, in which teachers are instructed to focus on the programme-oriented aspects, creating a so-called 'cover-it' syndrome, meaning that the role of the teachers is mainly to cover the syllabus regardless of any external classroom specificities.

6.1.2 Past efforts towards school-based innovations

In the past several decades, Portugal had several attempts of engaging with an innovative curricular approach at the policy level. One of the earliest such mechanisms was the so-called "law of pedagogical experiments" (DL 47 587/1967) which was put in place in 1960s during the time when education in Portugal experienced high levels of centralism. This regulation within a strong and rigid system allowed teachers and schools "to do things differently so long as they were controlled and regarded as 'experimental'" (Roldão, 2003, p. 89). The regulation created space for a number of different innovative initiatives and local projects, as well as significant attempts at the national level with introducing a new curriculum for grades seven and eight in 1973. Roldão (2003) notes that these efforts did make a significant impact on the political discourse in the country that became enthused about innovation and improvement. However, the "culture of experiments" stayed at the level of projects that are exception to the rule and do not obstruct the "normal" implementation of curriculum. This practice has become deeply ingrained into teachers' professionalism where pedagogical experiments are mainly seen as projects that are generally good and helpful for the school but reach only a segmented portion of the school or a system. Amaro (2000), who made an in-depth analysis of another curricular initiative called Área-Escola launched at the beginning of the 1990s, agrees on this

analysis, adding that the efforts to introduce the intervention in the schools' every-day life did not necessarily or crucially change the schools' *modus operandi* but rather, and only to a certain extent, enrich the school life with several extra-curricular projects.

Área-Escola (A-E) was a curricular intervention that came as a result of thorough analysis of what shapes the education in Portugal, and a realisation that curriculum cannot be seen only as a formal independent process, but one that is interlinked and relies heavily on quality participation of teachers, students, parents, and community. Therefore, it became clear that the articulation of education comes through schools as facilitators and managers of investment that the above-mentioned actors contribute to. The idea for A-E was not to create a single curricular subject, but a curricular area with an aim to develop "skills which promote the connection between school, community and the students' personal and social development; it should be part of the content of the different curricular subjects and promote interdisciplinarity" (Amaro, 2000, p. 8).

Problems that were at the time identified with the implementation of A-E were described as following:

- Lack of time for A-E activities mainly due to the many tasks that have to be done and the pressing need to teach all of the syllabi which are too extensive and give the teacher little autonomy
- Unfavourable working conditions, especially due to the lack of material and financial resources to implement the legal guidelines
- The lack of motivation on the part of the teachers and the difficulty in adapting the syllabi to the theme chosen to be developed in A-E
- Lack of information and training
- The need for a better understanding of possibilities arising from the syllabi of the other subjects (a relevant factor in implementing interdisciplinarity)
- Teachers unfamiliarity with team work and co-operation

Overall, the evaluation that was done by the National Educational Council (*Conselho Nacional da Educação*) based on surveys, reports, and independent evaluations of different agencies (including the Institute for Educational Innovation – *Instituto de Inovação Educional*). The results exposed several areas in need of more comprehensive and systemic support, underlining

the need for curricular autonomy in schools. This was tagged next to a better and more localised support to teacher professional development as Amaro has stated here:

> Human resources in schools primarily consist of teachers; as a consequence, their development is of utmost importance. This new curricular area constitutes a challenge for most teachers, as it demands engaging in co-operative work, developing new forms of communication and furthering their knowledge about interdisciplinary work. Nevertheless, teacher training happened more outside than inside the school, which means that schools were not prepared for the challenge posed by the reform. Schools resorted to training institutions to gather information and discuss their problems. This type of teacher training that has been taking place in Portugal seems to be unproductive. The fact alone can be a significant indicator of the lack of communication and dialogue in schools. Training should be more action-research based and data concerning teacher practices should be discussed (2000, p. 29).

The A-E initiative might have not worked as planned but the value of it is unprecedented to the future of educational policy-making. The analysis that was made by examining a multi-stakeholder evaluation did indeed point out that interdisciplinarity is a pedagogical challenge and a difficult demand for teachers to handle without extensive professional development. Having an ingrained idea that curricular matters have to be taught and covered completely, cross-subject project work was seen more as a goal rather than as a means. Additionally, the existing organisation of schools in vertical and disciplinary terms makes both school-community relations and interdisciplinarity a great challenge for the structure and organisation (Amaro, 2000).

Problems that were identified in the Área-Escola initiative, were recognised also five years before, with an innovative intervention called P3 project schools. The P3 project school brought an idea of open plan schools in Portugal which implied architecturally different setting for teaching and learning (Martinho & Freire da Silva, 2008). Open plan schools in Portugal was initiated by a large movement supported by the OECD Mediterranean Regional Project, and in particular a group of architects, engineers, and pedagogical consultants, working under the Development and Economy in Educational Building, an OECD project that had similar teams across Mediterranean countries. While first pilot school was inaugurated in 1966 in Mem Martins, it was not entirely an open plan but had rather had a bigger teaching area, a multi-purpose hall, and a central patio that offered pedagogical flexibility (Martinho & Freire da Silva, 2008).

The design of the Mem Martins school opened the door to more courageous school architecture endeavours, in particular causing a change of perspective and elevating the importance of spatial freedom for various didactic techniques. Number of open space schools were erected

under the initiative called P3 project schools and following two main objectives (Martinho & Freire da Silva, 2008, p. 5):

1. Pedagogical objective that allows creating buildings that offer several possibilities for individual and group teaching, and can accommodate diverse learning activities
2. Constructive objective that allows creating buildings with fewer larger classrooms as nuclei, following repetitive modules and few constructional variables, accommodating the possibility to adopt to changing student numbers and various site conditions.

In 1985 a map from the General-Directorate of Basic Education (Direção-Geral do Ensino Básico) counted 371 open plan P3 project schools across Portugal, with varied construction of modules that could be optionally added or removed (Martinho & Freire da Silva, 2008). As one of the objectives note, the P3 project schools had a very important demand in regard to how curricula are implemented in the school space, reflecting on how pedagogy is used by teachers individually and collectively. The vast large rooms insisted on teacher collaboration, more practical and student-centred curriculum, combination of learning techniques including small group work and self-directed individual learning. Having several student groups in one large space needed to be also combined with educating about respect and responsibility at open spaces, inciting a new behavioural mode for both students and teachers.

The P3 project school design was rejected; teachers complained about the noise levels and inability to work in the new environment due to the lack of proper training. Martinho and da Silva (2008, p. 5) note: "[a]s the space was imposed upon them [teachers], the change was not well received and protests emerged against this type of school". This soon led to building walls inside the large rooms and the open design was brought back to traditional classroom design, and more comfortable traditional teaching styles.

Escola da Ponte

The open space school design was not rejected in all schools in Portugal, and Escola da Ponte is one such that embraced the change and transformed the traditional teaching and learning notions. The forefather of the school, José Pacheco, was led by the idea that architecture holds a significant role in reaching the objectives of education, hence the open structure of the space imposes freedoms for students to learn and not be dependent on the teachers for their learning (Martinho & Freire da Silva, 2008).

Escola da Ponte has shown great success in relation to both student outcomes and tackling drop-out rates. The school follows a notion of learning partnerships where learning aims are negotiated between students and teachers and they are not necessarily shared as the space is naturally occupied by different age groups. The large spaces, referred to as nuclei, are

facilitated by two or three teachers at a time, and the scheduling of groups and teachers is stated at the entry to the room. This is where the student can find if for instance a teacher of math will be in the room in the given time or not. A practice like this allows the student to approach the teacher and ask for further support. The open classroom and the architecture of the school significantly impacts the openness of teaching and, more importantly of learning, inspiring a different pedagogic method in which learning is sought after. (Field notes, 2 October 2017).

The way space and pedagogies are used in an interlinked manner is not only altogether innovative but also very significant to how learning is perceived and achieved. The open space of Escola da Ponte offers learners to take charge of their learning and engages teachers to become learners too. It has been reported in comparison to other schools, pupils from Escola da Ponte achieve better academic performance even though the school's approaches to education and management was not always eagerly accepted by the local surroundings and the national educational context (Martinho & Freire da Silva, 2008).

Even though the P3 school project did not succeed as desired, the idea of refurbishing the physical infrastructure that better suits the learning opportunities of students and teachers was reintroduced in 2007. This was a part of a general modernisation of Portuguese secondary schools that included also opening the collaboration between schools and the local community (Heitor et al., 2009; Heitor & Escolar, 2008). Less innovative in its attempt, the modernisation did tackle overall poor state of some school buildings that have not been appropriate anymore for learning in the 21st century. However, apart from improving habitability, safety and accessibility of the school buildings, the plan was to create new formal and informal learning places for students and teachers, as well as to connect to the community which would be invited to use the facilities after school hours (Heitor & Escolar, 2008).

There were two other noteworthy interventions that took place in the period between 1996 and 2001, namely the Elementary Curriculum Reorganisation (1996-2001) and Good Hope Programme (1998-2001). Both of these were devised as innovative initiatives that help break the usual methods of promoting change within the system, and they arrived to the Portuguese educational scene in "co-existence of a strong discourse of change and an almost unchangeable system" (Roldão, 2003, p. 90). As Roldão skilfully explained, there was a notion that "the centralist organisation of school and curriculum, alongside the proliferation of small and diverse innovative projects (that) are relatively impotent to effect fundamental change in the system" (2003, p. 90).

The two interventions came as a mix of top-down and bottom-up innovative processes that had a grassroots support. The Elementary Curriculum Reorganisation (ECR) was performed under the provisions of the Department of Elementary Education (*Departmento de Educação Básica*),

while the Good Hope programme was initiated by the Institute of Educational Innovation. These two interventions both had a networking strategy with an aim "to use the change process as a formative tool for schools, generating from the 'experiments' an informed action within those schools and towards others they are in contact with, as well as around the higher education institutions that provide support to the schools" (Roldão, 2003, p. 91).

While the Good Hope programme starting point was successful practice at the school level, ECR begun with gathering experiences from school willing to participate and opening a nationwide debate to all schools over the concerns facing education. Several discussion documents were opened, namely a discussion on curriculum trends, set of competences attained by every student at the end of elementary school, rearrangements of curriculum in order to achieve the identified core competences, and examples of curriculum adjustments and improvements. These debates formed a base for volunteering schools to implement in their experimental changes and eventually the reports from schools on integrating the change supported a development of an educational law in 2001 (DL 6/2001).

At the other side, the Good Hope programme was designed to support teachers and schools within 28 individual examples in disseminating their good practices. Good practice examples were fitted into four general thematic areas, namely, improvement of learning for all, organisation and social improvement of the school as an education institution, school-community interaction, and the use of ICT in education. Practices all portrayed the importance of teacher professional competence and the school's organisational capacity as utmost important for creating a coherent educational provision with aims that suit the uniqueness of the given context (Roldão, 2003).

These prior initiatives made space for serious consideration of how education in Portugal is conceptualised to suit the new society entering the new millennium. Interventions such as A-E together with others mentioned here opened up a debate and emphasised the need to consider the following changes in education:

- New forms of curriculum development, and encouraging schools to advise their own curricular adjustments
- New school organisation modes
- New teacher training approaches
- Development of new teacher and learning materials

- Readjustment and opening up the school physical spaces

At the doorstep of 2000, the Ministry of Education become committed towards decentralisation and school autonomy, inviting educational research initiatives and diversifying teacher training programmes. The A-E initiative was definite realisation that new curricular organisation models are needed, especially such that are "aimed at professional development culture of curricular planning based on adjusting the curricular guidelines to each school context; fostering of school self-evaluation policies and creation of local education policy that effectively involves families and social partners" (Amaro, 2000, p. 42).

A new legislation (DL6/2001) was introduced at the beginning of 2001 aiming at offering schools a greater autonomy and flexibility to define the curriculum and specific class projects that would better suit the local circumstances and student needs (Roldão, 2003). In 2013 Portugal had an above average spending on education at 6.8% as proportion of the national GDP. The budget overall decreased in 2015, which was a reduction of over 11% for primary and secondary schools, and the main reason for this was the decline of teaching staff numbers (European Commission, 2015). After 2013 several measures to increase the efficiency in educational spending were introduced, particularly focusing on optimising teaching hours. In addition, a publicly transparent comprehensive portal that benchmarks school performance was introduced at infoescolas.pt.

However, the greatest success that marked Portugal's public education system was the increase in student retention. By 2014 Portugal has managed to cut early-school dropout rates to 17.4%, which is almost by double in comparison to 2009 when the rate was 30.9%. Absenteeism was tackled by new measures introduced in 2013/2014 that helped schools struggling with failure and early-school dropout problems. The support was arranged through tailor made school level solutions, and one of the most significant interventions is the Programme for Priority Intervention Educational Areas (*Territórios Educativos de Intervenção Prioritária*), known as the TEIP programme. TEIP was introduced in 1996 as a tool for supporting inclusion in disadvantaged areas (European Commission, 2015). The practice was borrowed partly from similar international examples such as Zones d'education Prioritarie in France, Head Start and Follow-Through in USA, and Education Action Zones in England, all devised to tackle problems of social inequalities and school failure (Sampaio & Carlinda, 2015).

As noted above, in the period between 2011-2013 Portuguese education experienced a significant drop in recruiting new teachers which significantly influenced the age structure of the teaching profession. Parallel to this, several reforms were put in place targeting the quality of teaching, such as revising the entry requirements for initial teacher training, renewal of fixed term contracts and limiting them to five years, as well as developing a new system for teacher continuous professional development (CPD). The new CPD provision better targeted teaching skills and pedagogical knowledge, which has been a step away from core subject knowledge that was previously the focus of CPD (European Commission, 2015).

An important element of the Portuguese education system is the school resource management which clusters schools by their geographic locations. The school clusters (*agrupamento de escolas*) on average includes all levels of pre-tertiary schooling, including pre-schools and kindergartens, three cycles of education (up to grade 9), and secondary school including secondary vocational provisions. This allows better organisation of educational objectives across a school cluster in a geographic area and enables a better use of school human and material resources. Teachers are contracted and appointed to a specific school cluster through a central national system that supports equal distribution of experienced and novice teachers across the country.

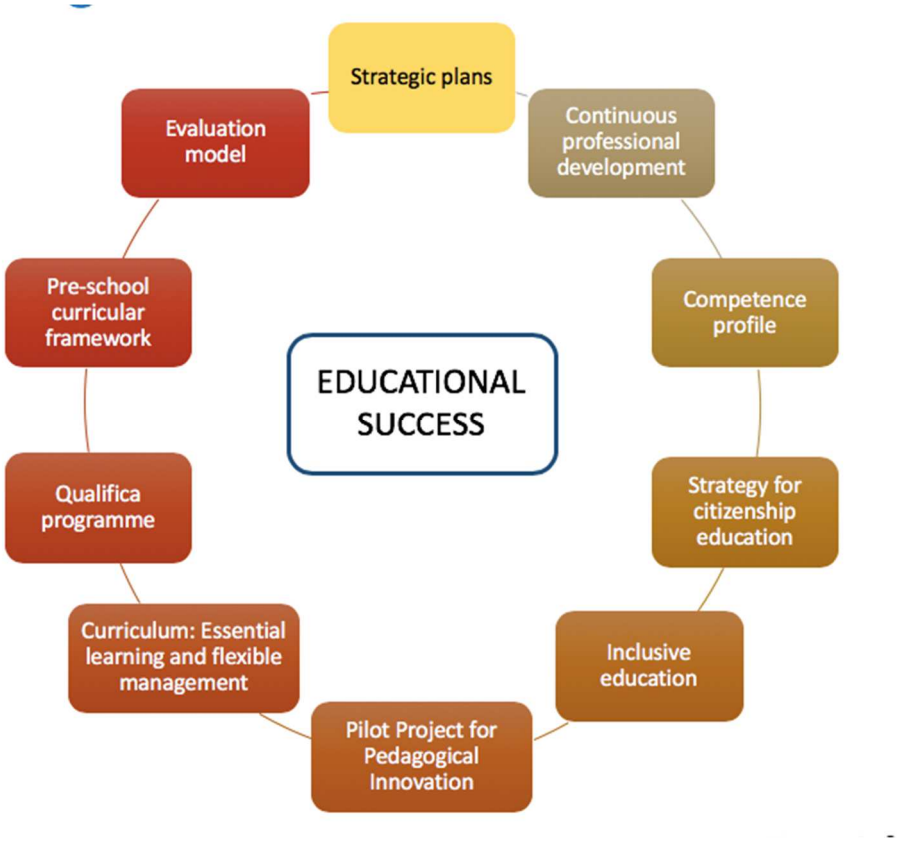
6.1.3 Current situation: overview of innovative reforms and interventions

The Portuguese educational system today is based on a comprehensive policy system that has been learning from the lessons in the past and from the international examples. As noted above, Portugal did have a rich and slightly disordered set of legislative provisions in the attempt to modernise educational practices and deal with troubles affecting Portuguese schools and students, namely the high level of dropouts. A conversation with an educational expert brings out exactly this:

> "The idea [with the current educational policies] is to reduce the school failure and promote success of all students" (Education expert interview).

This might seem as a natural consequence of educational legislation, but in Portugal, school success is today observed through various aspects, not only through the lens of one single actor. Therefore, measures impacting adult education, pre-school curriculum or teachers' continuous professional development are all part of the "educational success". Figure 14 presents the mix of policy measures that have been combined in order to reach the aim of educational success.

Figure 14: The outline of the comprehensive mix of legislative measures



Source: Ministry of Education, Portugal (2017)

At the very top of this policy mix sits the *National Plan for Educational Success* (*Programa Nacional de Promoçao do sucesso escola - PNPSE*) paired with an intervention that has shown to be both necessary and very helpful, *Priority Intervention Educational Areas Programme* (*Territórios educativos de intervencão prioritária – TEIP*). The former, PNPSE, is a cornerstone for all governmental initiatives and interventions, as well as a repository for schools where information can be transparently found.

Under the provision of this educational strategy, continuous professional development in Portugal has moved from the pre-existing model of individual teacher training needs to organisational needs where teachers collectively at the level of school need to identify professional development needs according to the schools' educational plans. The CPD is done through the Teachers' Training Centres of School Associations / clusters and can be delivered by experts in the required field. The possible trainers can be consultants at school levels or from the ministry, academics and researchers from universities, and teachers that have the required qualifications. Organisational needs are identified within the schools' strategic plan which is jointly developed and discussed by the entire school community.

Profile of the students leaving compulsory education (*Perfil dos alunos à saída da Escolaridade Obrigatória*) is a state document that provides the idea of competences students need to obtain at the end of their compulsory education (end of the third cycle). The document was published in 2017 following a long process of open multilevel public consultations which included teachers, school leadership, parents and caregivers, students, representatives of industry, non-governmental structures, and community leaders. The process included a wide national survey as the expert interviews confirmed:

> "We had a big discussion, a big national audition of students, then we had a national audition of teachers, then we had several regional auditions of parents, then employers, trade unions, commerce, industrial federations, then the minister created a group of national experts some of which are former ministers of education and researchers from professional associations. They came with a 20-page document on what is expected from investing in 12 years of education. It contains a list of knowledge, skills, attitudes and values that are quite aligned with OECD and European Commission papers. After this process, the Ministry asked for each association of subjects to look into the national curriculum and devise what is essential as an output that will contribute to the identified content of this document. They also had a task to advise what can be freely managed by teachers. So basically, what is instrumental and what is essential" (Ministry of Education focus group).

The external expert that works with the schools in different projects confirmed this, noting that through a survey approximately 25000 teachers across the country were asked about the current conditions and development of active strategies, about the school organisation and the curriculum. The expert added that students, who were asked about similar aspects of their education, answered similarly to teachers, the governmental bodies, and other sectors, concluding that they "wanted to learn more actively, about things that are connected to day to day life, and about things that matter in life" (Education expert interview).

The core competence document has been advised to schools and has been in use from beginning of the school 2017/2018 year, with an expectation that schools devise their own regionally relevant curricula that will follow the essential competences, promoting values, and teaching knowledge and skills proposed in the document. Using the opinions shared in the focus group at the ministry:

> "The core competence document is more than curriculum, more than content, we are talking about competence, about subjects, about values, about skills. So the teachers are not doing well is they teach only subjects because in the end we want to achieve competence and this is more than subjects alone, as it is evident in the document" (Ministry of Education focus group).

Among the other legislative provisions presented in Figure 14, the most important in

understanding the scope of current Portuguese attempt at innovation in education are the two programmes, namely the *Essential learning and flexible management* (renamed into *Curricular autonomy and flexibility*) and *Pilot Project for Pedagogical Innovation*. Even though it might not seem evident, these two come tightly connected with the *Qualifica* programme which is a provision on adult learning and lifelong learning.

> "The idea behind [Qualifica] is that besides the preschool enrolment, a high predictor of school success is the level of qualification within the student family. If families are more qualified [educated], they will be more engaged in the process of the student's learning and the school, so the qualification of the student becomes relevant to the families" (Educational expert, Portugal).

The programme is interlinked with all the other provisions and comes as an elemental learning outcome from the TEIP programme where working with families on cases of dropouts was one of the most essential support methods for reducing the numbers of early school leavers.

The *Pilot Project for Pedagogical Innovation* (*Projeto-Piloto de Inovaçáo Pedagógica*, *PPIP*) has strongly followed this logic; in 2016 the Ministry of Education invited six schools to participate in a pilot project within which the selected schools will have an absolute autonomy over all decisions, and under two conditions:

1. Any (new) activities within PPIP cannot cost more than what is predicted by the allocated state budget
2. The national mechanism for teacher recruitment cannot be changed.

The six schools had the freedom to reorganise classes, define an alternative curriculum, install new methodologies, even influence the timing and organisation of student classes. In the focus group interview which included the ministry and one of the PPIP school leaders, four general innovative categories have been identified (Kovacs & Tinoca, 2017, p. 80):

a) Organisation of student classes – the organisation of students into classes can be shifted to suit a pedagogical logic rather than administrative one that is in current use. Schools have the freedom to reorganise students in way that better suits the overall learning paradigms
b) Organisation of subjects – the current subject division can be changed to a more suitable manner, including bringing subjects together or abolishing them and proposing new ones
c) School timetable – there is an absolute freedom that schools can take to recognise the

class length, as well as the division of academic terms

d) Curriculum – the schools have taken the freedom in shifting the curricular content, abolishing unnecessary elements, introducing their own contents and overall negotiating the more local and more relevant curriculum.

The main aim of the PPIP was to encourage creation and implementation of alternative school strategies that can enhance the quality and relevance of learning for all students and to further tackle the issue of student retention. With having the full freedom to adjust their curricular and organisational aspects of the school, the decision making remains at the level of the school and the local community. In fact, within three years of the programme, the six schools have all taken one full year to negotiate the change with the main stakeholders, namely to communicate and gather information from teachers and students within the school, as well as parents, local industries, and municipal representatives outside the school. In this way, the agreement for the proposed changes was shared and the principals had both the insight and the legitimacy to continue. The year of negotiation was also used for preparing teachers for engaging with experimental methodologies and curricular changes.

At the ministry level, the essence and the success of the PPIP is of a great value, because upon its finalisation, the lessons learnt would help in understanding in what ways and with which mechanisms Portuguese education can "unfreeze the pedagogies" that have been unchanged since the 19th century (Kovacs & Tinoca, 2017).

The other innovative provision, *Curricular autonomy and Flexibility* (*Autonomia e Flexibilidade Curricular*) deals with providing more autonomy to school leadership and management, and more flexibility in the curricular activities within the classroom setting. The call for engaging in this measure was open in 2017 and 235 school clusters across the country joined. The provision is highly flexible in itself, therefore, the schools can contextualise it as they find most appropriate and apply the measure at a level of one grade, several grades, or the whole school. The aim of the initiative is to promote a better learning outcome including the development of higher-level skills, especially with focusing on the core competences. The legal provision allows the management of the curriculum to work in a more flexible and contextualised way, and most importantly recognises the effective exercise of autonomy in education with the notion that this autonomy should be guaranteed at the level of curriculum. In the words of the educational expert:

> "The idea is that the school can rearrange 25% of the curriculum. They can create new subjects, by integration of subjects of the curriculum, they can organise the structure of the school year, they can rearrange the disciplines and subject delivery. It is a way of trying new approaches. In this project we are bringing subject to the core curriculum – citizenship" (Educational expert interview).

This initiative comes as both a freedom and demand for teachers that do not always feel prepared for the task and that too often in the recent past have been asked to follow the prescribed curriculum. Notions of this are also visible in the further exploration of the data from the selected schools.

6.2 Presentation of four innovative school environments

The importance of presenting data at the level of school is twofold and it was already mentioned in the Hungarian case. Shortly, it is significant to understand innovations built into learning environments as they influence the ways of working and learning, as well as it is important to understand that a school functions as a workplace ecosystem. Showcasing elements such as physical environment, timing and schedules, approaches to curriculum, and leadership approaches, are of great prominence in gaining an overview and further understanding teacher learning in innovative environments.

While governmental interventions have been a significant factor for these schools to develop innovative learning environments, they were not the only nor the primary source of innovations in schools. Many of the initially visited schools in Portugal developed their own innovations that in some cases reached out to the entire clusters and were shared with other schools. In some cases, these were complex innovative pedagogical programmes and in some they were a set of individual pedagogical and organisational directions that the school gradually absorbed or developed.

6.2.1 School 1

This public school offers education at all three cycles and is located in a coastal town north from Lisbon. The school itself has around 1200 students and is an administrative and leadership centre for a cluster that is made of other smaller schools. Some of the smaller schools are located in the town but most are in the surrounding villages, with all together around 2800 students in total. The school was selected as one of the PPIP example schools thus this is one of its innovative elements. Yet, there is also the fact that this school is a TEIP school and has a history of implementing targeted dropout prevention programmes. Knowledge that the school gained through TEIP also enabled a logical participation in *Qualifica*, a national programme

that targets adult learning and adult (re)qualification. In fact, there is a designated physical space in the school for working with parents, and a psychologist available for conversation that can recommend further professional adult orientation.

The most intriguing work currently done in the school is the development of the PPIP approach. The principal explained:

> "They [teachers] create a plan with transdisciplinary subjects. And students work in project areas, while teachers have each other to work with in combining everything. So, basically, for the start of the year they created 12 projects and each class needs to work on 6 of them. These 12 projects have all the subject integrated, all are covered. And I work in one of the teams – yes, I am a teacher too" (Principal, School 1).

Teachers involved in PPIP meet two times per month, and each of their projects lasts for 6 weeks after which they need to do another round of projects. As an example, a project called *Water* is one of such projects and it integrates Portuguese, English, science, geography, history, and music:

> "We prepare some activities, then the students work in groups. They have to make some research and they do some practical activities. At the end we have to make something that the society can see that the students are doing, even if it is only their parents" (Teacher 2, School 1).

Research and practical work, even though independently done by students in groups, is supported and advised by teachers from the angle of their subject expertise, and the tasks are designed as practical as possible. Teachers explained that in the example of the project *Water* the pupils need to discover the particular history of the sea and the river running through the town, to understand the significance of geographical composition and how it supports the industry of the region, they need to understand the attractiveness of the region and write texts in English from a touristic point of view, and also letters in Portuguese addressing the authorities with certain issues related to the water surfaces in the region. Presentation involves creative work too, frequently using artistic expression.

Another novel aspect that was introduced within PPIP is the approach to student evaluation. Grading system of students is planned to shift from completely summative to, partly and predominantly formative, with some summative aspects. Apart from this, the student scores and grades are not transparent and visible to public after each academic year, but they will be given at the end of the respective cycle. This ensures better continuity of student work and learning progress as one of the problems with grading at the end of each the academic year was

that students could rarely overachieve the given grade. In this way, the grade is formative and private until the cycle is over and giving better support to individually advance in students' learning. The PPIP intervention is currently piloted and tested only at the 2nd cycle starting with the 5th graders.

The most specific quality about the physical environment of this school is the use of student artwork through the corridors, yards, and common areas, as well as plethora of famous quotations that incite learning, curiosity, courage, cooperation, and meaning.

6.2.2 School 2

Borrowing practice, mixing the approaches that work and advancing them to the context that is favourable for the school, is an important element of functional and successful educational institutions. In School 2, located in a smaller place close to Lisbon, which has a large number of students, a single pedagogical approach was slightly less prominent. Nevertheless, multiple of single innovative elements presented in the functioning of the school were ever so rich and meaningful. This particular school was doomed as a failing school having a high level of dropout students, violence, and criminal activities. Change of leadership gradually improved the standings of the school which became one of the most sought after schools in the area. The student numbers rose from 300 to 1500 within 10 years of gradual and strategically planned change. The first step was identifying the burning issues, such as when and why violence occurs, and targeting them with solutions that might seem unorthodox but are effective.

> "We don't have school on Friday afternoon. We saw that most of the aggression and behavioural misconduct among boys in particular happens on Friday afternoon. They cannot sit anymore in the classroom and they go out to the streets or the school yard and make problems. So, we decided to cut the Friday afternoon and reshuffle the curriculum. I looked at the law and it does not say this is forbidden so we did it" (Principal, School 2).

Another similar example is with students being late for classes. This issue was solved with abolishing the school bell and putting the time responsibility to the students. As the principal explains: "They see it is better to come to classes on time, because we made it very boring if they don't. We have a long, boring procedure that the student needs to go through in case he or she is late, and they don't like it, so they really try to be on time". This unusual intervention seemed small and questionable at the time, but it actually had eradicated intentional student tardiness almost to zero.

The school was also looking into its curricular content in order to understand if it fits the educational goals it aims at. The principal has worked with the teachers for two years in order to identify six competences that they as a school want to achieve at the end of the students' basic education. The incredible amount of work paid off only after series of "back and forth" and finally the school managed to devise its own six core-competence based curriculum. This helped not only to bring teachers of different subjects to collaborate and communicate, but also has managed to mediate the traditional hierarchy of subjects where some (science, maths, language) are seen more important than the others (physical education, music, arts). The communication over core competences made it evident that all teachers value their subjects equally and that each subject needs to transfer a similar value to the students. Furthermore, the work around identifying cross-curricular competences created space for another innovation which was related to abolishing traditional student books. Teachers were provided with the directive to use their long working experience and creativity, build teams around the same subjects (i.e. teachers of maths working together), and create their own curricular material by not relying on books but integrating different sources of knowledge, like use of the Internet. The school is notorious for allowing the use of personal digital technologies, such as smartphones and tablets, hence teachers were advised not to fear the use of these technologies for the purposes of advancing learning.

Since Portugal had an integrated education in terms of special education needs at the time when the school needed to undergo reconstruction, the point of developing infrastructure that can accommodate students with different physical needs was taken into great consideration. This resulted with the school being able to admit more students with different bodily and sensory disabilities, and they amount to 20% of the whole student population. Part of the physical environment of the school is the large external wall of the school where it is permitted for students to make graffiti. As noted by the principals, these forms of artistic expression also helped with creatively dealing with troubled students.

School has a secondary and vocational education integrated to its educational provisions, therefore they have specific learning classrooms, such as mechanic workshops, chemistry labs, learning kitchens, medical workshops, and for the special education needs classrooms for common house chores. The school principal often connects to other schools across the country and on the islands for sharing positive outcomes of innovative interventions and also for supporting change that goes alongside Portuguese legislation.

6.2.3 School 3

An example of a complex and innovative pedagogical programme was found in a private school that radically changed six years ago with the arrival of a new principal. The school had a long tradition as a highly conventional catholic institution with a traditionalist teaching and learning routine which changed literally overnight into an institution that upholds the highest principles of student-centred learning. While the religious values remained as important and integrated into practice, the school shifted to becoming a bilingual education provider for basic education with a pedagogical model called *VOAR* (the translation of this Portuguese word means "to fly"). *VOAR* is an abbreviation to core elements of the pedagogical approach, namely *vinculaçao* (bond), *ousadia / empreenderdorismo* (dare), *autonomia* (autonomy) and *responsibilidade* (responsibility), and as such each of these elements is integrated in how the teachers support learning within the school. The programme enables broader student collaboration, project work and team work, while in the same time teaches students to learn autonomously following their own individualised learning programmes. As in other schools, teachers have a role in teaching their subjects and being class teachers. However, in this school the pedagogical programme adds another role to teachers in terms of tutors or mentors for individual students, regardless of the grade or class. The students can choose the tutors among the teachers and this role is special because it offers a personal consultation to students on their individual learning and personal development. The individual learning plans are commonly discussed through this relationship, together with all the difficulties the students might have. The individual learning plans are revised and reviewed together each fortnight.

> "The education team meets fortnightly to monitor and reflect on the appropriateness of the practices to the pedagogical model [of the school]. This has been implemented since five years ago and was started in the 1st cycle and kindergarten. Subsequently it was extended to a group of the 2nd cycle, then also to a group of the 3rd cycle and, two years ago, to the whole school. This progression allowed the faculty to be formed. The sharing of good practice, fortnightly meetings, contact with other schools and professionals, national and foreign, and the most intense training during the month of July are an essential tool for the evolution of teachers" (Teacher 8, School 3).

> "By working on projects autonomously and collaboratively, students are challenged to build their knowledge. Autonomous work occupies a significant load on the weekly time spot, and in these times, classes are divided into small tutorial groups, which work autonomously under the discreet guidance of a tutor. Their [students'] work is planned individually of course and evaluated every two weeks by the students and their tutors. […] The whole process was recently enriched with the introduction of the SOLE, the Self-Organised Learning Environment, a methodology of the award-winning learning instructor Sugata Mitra. This has given excellent results both in motivation and in terms of learning" (Teacher 7, School 3).

The autonomous student learning is only one side of the pedagogical programme; advanced staged project work is another. The key to the approach that the school developed with student project and groupwork allows for acquiring knowledge beyond the two usual stages, the discovery and presentation, and incorporates the third level of complex comprehension.

The uneasy and rapid school change caused many teachers to leave and several to come to the school. This did not discourage the school staff to further innovate, and during 2017 the teachers started testing a new pedagogical approach through which a class at the certain level has all subjects integrated into a yearlong storyline. The project work and all subjects have a note of exploration and discovery adequate for the particular learner level. In addition, the school uses Content and Language Integrated Learning (CLIL) that has been proven to work for bilingual environments.

The physical environment of this relatively small school has a welcoming and embracing sense to it. Regardless of the fact that the building was an old one, the corridors are decorated with children pictures from different occasions and outings, as well as with occasional sayings that are embedded in the school culture – for instance "I say good morning with a smile". The quotes are in both languages (English and Portuguese). Furthermore, classrooms are designed to engage learning for different purposes, including space that allows student groupwork and also a part in the back of the classroom where students can work independently.

> "Many spaces of the school have been adapted for this. They gained colour and diversified furniture, losing the look of conventional classrooms. They are now cheerful and welcoming work and learning rooms" (Teacher 9, School 3).

Depending on their specific individual learning goals, students roam freely through the space, working with high dedication on their learning assignments, occasionally conversing with their peers and teachers.

6.2.4 School 4

Visiting this school and talking to the teachers opened a number of important conversations about what is innovation in education. Seemingly ordinary, the school is not only the central for the cluster, but it also serves as a professional development training centre for five other clusters in that area of Lisbon. And teachers in charge of the training arrangements often state they like to talk and discuss with colleagues coming from other schools as these occasions open up important question.

The first several minutes of the encounter with the teacher focus group was absorbed by questions whether the school is innovative at all, which was captured by this teacher's point:

> "What is innovation for you it is not the same for her [the other teacher] or me, because we have different cultures and different moments in our development. You maybe talk about changing the seats in the classroom, and that is an innovation, that is important in some cultures that is a great innovation. For others it is 'What? You are still there?!' I think that for each school, I don't consider us an innovative school, but we try to solve the problems. The focus is on the students' success and our great aim is the involvement, direct involvement of students in school. I don't think we must innovate, but it [school success] must involve reflection, which I think we have" (Teacher 10, School 4).

As stated in the short excerpt above, the school has a celebration programme for students, one that culminates in an event called D-Day. As explained by the teachers, the D-Day is a day where students take over the school, and organise presentations of their ideas, learning and activities to other students and teachers. They prepare for this day over the school semester and teachers are invited to be mere observers and not to intervene in the event. The D-Day has seen such a success over the last few occasions that the leadership brought a decision to have the event prolonged as a D-Week in the upcoming years.

Apart from this, the school was also awarded the European Award in Entrepreneurship, which the teachers were proud of but have commented as "a little strange for us" (Teacher 10, School 4). When asked more about this, the response followed:

> "We are struggling to change. And yes, we had the national award few years ago, for the cluster of the year and I was there with her [the other teacher] and we were astonished. Why us? And this is, I don't know if this is a problem, but we don't realise our own work, or we are too demanding with ourselves. Because I think we are far from our goals, we are always far. We try but we are far" (Teacher 12, School 4).

The school also participates in the national programme of *Curricular Autonomy and Flexibility* and has noted that they struggle with implementing the citizenship curriculum through different subjects. Nevertheless, teachers do engage in collaborative practice and sometimes teach in pairs, especially at the 2nd and 3rd cycle.

6.3 Teacher practice and teacher learning

In the next section data and analysis of the teachers' everyday work and learning in the innovative schools is presented. The structure follows the elements identified as main aspects of their work, including preparation, taking up special roles, collaboration with the colleagues, finding solutions and dealing with innovations. Furthermore, the aspects of their emotions

regarding the job and of mind-change which is closely connected to teachers' work with innovative solutions are examined. This sub-chapter finishes with providing information on school leadership which has been identified as a major contributor to creating learning opportunities for teachers.

6.3.1 Preparation and duties

The best common capture of how preparation and the amount of duties are perceived by teachers in Portugal resonates in the following sentence from a teacher focus group: "Sometimes we also have private life (they all three laugh)!!!" In many cases, the interviews provided a notion that there is a lot of work for teachers in innovative schools. For the work to be done, teachers participate in additional preparation and take up supplementary duties, which when contrasted to traditional preparation for classes and straightforward classroom teaching, takes more of their time. Nevertheless, once the new method or approach becomes familiar, teachers do report that some tasks and duties become part of the new routine.

> "A normal day at school includes a bit of everything, a bit of routine and a bit of surprises and challenges. We are a real school with real students" (Teacher 8, School 3).

According to most of the data, teachers often say that their mind still remains active in thinking about work even when they leave the school. This clearly indicates the continuous reflections teachers have over their work, which connects to both how the work was done and what could be better, as well as how to structure the next upcoming task. Managing these reflections and making use of them is a typical learning process of the developmental type. Regardless, whether they are "tasked" to think of the curriculum or not, teachers continue to do develop and think of how to better structure learning for their students. In many cases, teachers also report that their work involves more imagination and collaboration with the colleagues, because the novelty of the approach requires creativity, examples, and practice sharing. The main idea most regularly revolves around teaching and learning that is more student centred, as evident in this response:

> "Typical day at school seldom runs as we imagine. When the whole pedagogical practice focuses on the learner, it is necessary to constantly adapt and balance what we consider essential for their [students'] education and learning" (Teacher 7, School 3).

The duties of the teachers involved with innovative interventions usually include all the regular teacher responsibilities, including working with students, meeting parents, attending meetings, preparing for classes, and doing administrative paperwork. On top of this, other duties involve

participation in specific teams (e.g. school evaluation team, satisfaction of stakeholders, self-assessment, action planning, human resource management, etc.) and in some very special cases such as in School 3, teachers are also undertaking the roles of individual tutors/mentors, thus they have extra tasks towards individual students and their education.

When asked about the ways they manage it, they often just reply with laughter or smiles, saying it is part of how things are and how their job is. In some cases, especially when the intervention comes from top-down, the teachers mention they sometimes lack examples and more preparation. The education expert at the ministry that has been working closely with schools on implementing the new reforms confirms this:

> "In my perspective some of them [teachers] are [prepared] but the majority is not. So that is the key challenge for these schools [participating in innovative reforms] how to prepare the teacher to be innovative. So the first step needs to be to provide CPD to help them to create a new vision of education and what they can do differently from what they are doing now. Because the time changed and it is a different society changed and we have the technology, but the school didn't change. This is one of the key challenges and this is so important that the success of this measure [PPIP] depends on this, on how they [schools] can create the conditions to the teachers to work professionally. And this is the point from the perspective of professional development" (Ministry of Education focus group).

> "The teachers are aware that they have to change, they need to be more prepared with knowledge and CPD. They need to change the way they do the practice, to be sure they are doing the right thing. In the last years there was some innovations in schools on national level that opened the classrooms in some way so this change, so this made teacher open-minded to the need to change what the teaching and learning process. A lot of the measures included two-teacher collaborations, so they are now more used to work in partner in some subjects and areas. They are still thinking in traditional ways" (Principal, School 1).

The two opinions on preparedness of the teachers were very congruent with other educational experts, that continuously work as consultants for the schools. In their opinion, the characteristics of teacher community in Portugal are similar to other countries in Europe in terms of their preparedness and their emotions towards innovations and school change. As one educational expert noted: "we have a lot of teachers that are very sharp and they are on the top of what is happening, and they are always available to do some changes. But then you also have some that are slow in the changing process" (Education expert interview).

For instance, the PPIP schools have been preparing their project from June during the break in academic year. The time spent for holidays was in this case used for preparing for the upcoming year. Another school that works with integrating storytelling as a cross-subject narrative for

the fifth-class curriculum did the same. Frequently, teachers that work in innovative environments have to sacrifice their own private time because larger proportions of preparation are not well calculated in their usual weekly workload. Yet, this "sacrifice" comes as bitter-sweet; while it is just obvious that as any professionals, teachers do appreciate time off work, the additional time does lead to satisfying professional outcomes that are primarily connected with better student learning.

Furthermore, the lack of preparedness, knowledge and skills for innovative approach is commonly compensated by an elevated rate and quality of teacher collaboration. Teachers discover how to deal with the new situation on their own, and sometimes in pairs, and then share this with other colleagues, most often when asked for advice. These practices are also in most cases done in addition to their regular workload, as time for collaboration is not specifically allocated in their daily job. Additionally, lack of preparedness and fixed solutions can rather lead to better opportunities for developmental learning. Much of the conventional CPD is based on the notions of reproductive learning which is helpful, but in the same time very fixed to routines and traditional perspectives in which learning happens. Providing pre-set models might supress teachers' efforts in creating their own solutions and engaging in elevated levels of professional learning. Thus, specific lack of preparedness that is connected to tasks can be viewed from positive point as providing the space for teachers as autonomous professionals to design their solutions by themselves. As it will be stressed in the later text, this certainly needs to be well paired with time management and CPD that is oriented towards transformative learning rather than the reproductive type of adaptive learning.

Most of strategic planning and preparation happens in July and throughout August when most of the nation is on holidays. In one of the schools the teachers were very explicit in saying that preparations for the next academic year require "9 to 5 meetings" throughout the holidays season, a lot of reflections and discussion and taking large pieces of responsibility into their own hands, concluding that: "of course this is very demanding for teachers" (Teacher 9, School 3). However, this demanding job is somehow agreed upon by the teachers as they accept and concur that teachers have to be able to change to their new and more demanding roles.

6.3.2 Special roles

Teachers in all four innovative schools did engage in work that was often an additional task in their regular daily teaching work. In most schools these additional special roles would mean engagement in special teacher groups and tasks, such as in School 4 where interviewed teachers

also participated in two special school-wide groups, one for monitoring and evaluation of satisfaction, and another serving as an ICT point for other teachers. These tasks often came natural for the teachers as they would see them necessary for the school well-functioning.

A very special role was observed in School 3, which implemented a programme that supports the autonomous student learning paradigm. The teachers in this school are also tutors next to being "regular teaching professionals".

> "Tutorials are where the student is at the centre of their education, where they reflect to become aware and progress positively. The tutor helps the learner to reflect, to identify strengths and weaknesses in his or her actions and performance, to perceive what is right and how to maintain, to perceive what is less well and needs to be corrected, to prioritise and be even a better student and a better person" (Teacher 7, School 3).

The tutorship is a different role than teaching, and it is more about what interviewees call educating. The link that is created between the individual student and a trusted teacher is significant and a valuable tool for supporting the student that goes far beyond the traditional classroom practice. Yet, teachers see how this makes perfect sense in their practice as this caption reflects: "You cannot reach a student for whom you mean nothing" (Teacher 8, School 3). The significance of this type of an approach was enhanced in this statement too:

> "Regarding the organisation of [student] work per fortnight, I highlight the role of the tutor in helping and guiding the preparation of individual work plans. It is at this point, I believe, that the school makes a difference, in the guided accompaniment of each student by a tutor who is always present, who supports, who educates, who is the reference figure in the school context, similar to a father or a mother in the family context. The tutor guides the process of individual reflection that leads to self-assessment, helps the learner to take critical perspective on himself and to define points of effort for a better academic, personal and social performance. In the medium and long term, this reflective process has repercussions in all dimensions of the life of the learner, influencing the way in which he studies, the school, the relationship with the peers, the family, the way in which he participates in community life, and one day, how it can influence society" (Teacher 7, School 3).

While there were notable benefits of tutorship with regards to student learning, this very special role does hold significant benefits to teacher learning as well. By spending one-on-one time with individual student in the attempt to support their learning, teachers are required to use all their pedagogical skilfulness in designing the learning. Furthermore, the prior psychological knowledge (usually acquired at the initial teacher education level) builds up in a more useful way. As often these are not enough, teachers do tend to learn more about how to support individual development. It can be argued that teachers also get a possibility to learn about themselves as in roles of educators through these individual sessions. These relationships

can be intense and demanding, but as noted by the interviewees, they lead to meaningful outcomes.

Even though at the moment of data collection the idea of having teachers engaged with students on a more individual level was seen only in one school context, other school principals found this aspect of supporting knowledge interesting and helpful for achieving educational goals. This was explicitly mentioned in School 2, which is considering taking on such a practice in the following years.

6.3.3 Teacher collaboration and teacher collectives

As already noted, teacher collaboration is not only the foundation of teaching profession as such, but in innovative environments it is also a compensation for lack of very specific CPD and an additional source of ideas on how to deal with innovations. This was clearly stated by one of the teachers:

> "This [working with innovation] is the struggle because how do we organise our work for students, how do we involve the students, how do we evaluate the process and the assessment of the students. All of this must be created. We don't have nothing, but ourselves" (Teacher 3, School 1).

The emphasis that the teachers have nothing means that even though an innovation has been presented and put into place for the school collective, the teachers do not always get professional training on implicit elements of innovation. Therefore, arguably the discovery of what works relies on teacher collaboration, in both planning and implementing the innovation. While this can be seen as a disadvantage from the side of external CPD offer, there is another side that stresses out the possibilities of advanced developmental learning. As teachers pierce into the unknown areas of their work, for which no single CPD course can prepare them, they design their own learning that goes beyond reproductive. This bears implications to both the attitudes of teachers towards looking at their profession as a continuous self-development and the potential CPD that rather needs to enable teachers to be such professionals.

Nevertheless, when asked directly, teachers would brush over this aspect in their jobs. Collaboration is seen as deeply integrated into the work of teachers in innovative schools, and all conversations implied that work is done through close and intense partnership with others. Nevertheless, most of the collaboration is informal and slightly unobvious as these excerpts point out:

> "Since we have a small team, we are about 20 teachers, much of the communication

between us is informal. We exchange information during breaks, in the teachers' room or even call the mobile phone or via email. I think we can consider that collaboration between the teachers in the school is seen as a team work, in which the provision of each one is a contribution for a greater good and for the team as a whole" (Teacher 9, School 3).

Teacher 4: we have lunch together!
Teacher 2: and talk!
Teacher 4: we share and we work. If it needs to be done it needs to be done.
Teacher 3: exactly! (Focus group, School 1)

"There is a high level of informal collaboration which helps dealing with situations at the moments they happen, rendering it unnecessary to wait for formal meetings which we have also quite often" (Teacher 7, School 3).

"We talk about it, and then, when did we talk about it [asks the other teacher], ah outside during smoke, it made sense [to me]" (Teacher 12, School 4).

Therefore, it was not so easy to spot the qualities of collaboration through what was said in the interviews. Nevertheless, perhaps the best of all indicators of interconnectedness between the teachers was observed through focus groups. In these situations, it was not necessarily what was said but rather how it was said; situations in which three-four teachers would come together to answer the questions and discuss ideas about their work seemed as a lively bar conversation in which individual teachers finish each other thoughts, complement each other's ideas and in most cases do this in a very energetic manner filled with laughter. Smaller chatter in Portuguese, especially when they might slightly disagree or have a difference of opinion was a common sight, as much as it was completely normal to help each other in translating from Portuguese to English when a colleague is lacking words. The easiness with which the interviewed Portuguese teachers in these focus groups talked to each other, as well as how relaxed they were in sharing anecdotes from their jobs, was a certain indicator of bond and dedication to the professional community. Not in one case did the teachers appear constrained in sharing successful and unsuccessful experiences amongst themselves and with the external person (in this case the interviewer). As one teacher pointed out: "teamwork is like one bionic relationship" (Teacher 8, School 3).

Through conversation about the importance of collaboration there was no lack of clarity in pointing out that collaboration and teamwork are highly important.

"It is fundamental to create a team. All the work we have done in order to have school

> where the student is the centre of the educative process goes through a great theoretical foundation but also through a huge teamwork. In order for us to have a true school culture, we must have our goals well defined and effectively communicate to whole team what they are expected to do" (Teacher 7, School 3).
>
> "Collaborative work is very important in the success of our school. In order to have interdisciplinary projects, there must be a constant articulation between the specialists of the different areas. On the other hand, since the bulk of the project work is carried out in the presence of the tutors, they have to be within the pedagogical-scientific objectives, in order to orient the learners as best they can" (Teacher 9, School 3).

Meaningful collaboration is in the opinions of the interviewed teachers connected to classroom practice. Thus, all the collaborative efforts need to come through the understanding that this is needed for their improvement. A principal of one of the schools had a plan to enhance the collaboration through obligatory peer class observations. The teachers initially rejected the suggestion, and only after a tactical negotiation was the practice implemented few semesters after. The feeling of ownership of both collaborative practice and decision is a feeling crucial for sustaining teacher collaboration. However, when it comes to peer class observations, some teachers admit that this practice, even though very meaningful and useful, is quite often connected with a fear of assessment: "We see that even with teachers themselves and between them, it is difficult to open the class to another teacher. It is still difficult, and it is a problem. We speak about observation in the same thing as talking about assessment. They [the other teacher colleagues] don't see the observation as collaboration. So, observation is assessment" (Teacher 12, School 4). Overcoming this type of obstacles in teacher collaboration is a multi-layered task and most importantly one that depends on how teachers have been historically assessed for their own practice in the given context. Furthermore, as noted before, observation as a means of collaboration has to appeal as a meaningful practice otherwise it is disassociated with its purpose which is teacher learning and the teachers' feeling of community.

6.3.4 Finding new solutions

In most of the school contexts in Portugal innovation is seen as a practical discovery of new solutions that help students learn better. Having this in mind, the interviewed teachers and principals noted that practice sharing and collaboration among teachers was not enough. Continuous teacher inquiry at an individual level, and the motivation for constantly becoming better was identified as very important and needed to complement the somewhat structural notions of knowledge sharing.

Autonomy in teacher learning was mentioned as a concept connected to lifelong learning, and

at the very basic level teachers did report several obvious ways of finding solutions and enhancing their practices:

> "[I find information through] reading, online websites and forums, and participation in conferences" (Teacher 6, School 2).
>
> "I'm doing a lot of research on the internet and I'm taking part in trainings" (Teacher 8, School 3).
>
> "Through participation in congresses and readings. Integration [of new practice] is done if we feel it can improve our practice" (Teacher 7, School 3).

These points of view might describe an obvious practice, but the notion that the practice needs improvement is one that sometimes is not as obvious. Thus, reaching the critical point of reflecting on one's own practice and actively searching for solutions is a feature that might be more common in schools that tend to strongly strive for continuous development. Another important notion from the above section is the fact that a new solution needs to make sense for the improvement of practice, so in a way the teacher needs to "feel" that it will improve the practice.

Furthermore, from the data collected in Portuguese schools, important conclusion was that the leadership understands pedagogical processes, student learning and can stimulate a discussion related to a new pedagogical direction.

> "Each teacher usually looks for information about the formation [teaching] in their area. At the same time, our director brings us and forms us if there is any method or technique relevant to our type of work. An example of this was the work in SOLE. At the end of the school year, the principal introduced us to this new method, set us to work on a theme according to the same method, and from the following weeks we planned activities of the SOLE type" (Teacher 7, School 3).
>
> "I think I am a little bit more open minded than I was before, and I am trying to read about subjects and to create learning tools. I teach economics and economics is always changing so to be able to follow this, I think yes, it [the professional attitude] has to change" (Teacher 12, School 4).

Having autonomy for designing work and being autonomous as a learner also helps in terms of teachers truly living their jobs and being immersed at the higher professional level. One teacher explained that since the school got rid of the books as the main source of preparation for the class, she found herself sometimes watching television or reading an article and getting a fresh inspiration for her class.

Yet, similar to collaboration, there is usually no extra time in the teachers' schedule to do their autonomous additional learning and preparation, thus it usually occupies a lot of private time.

6.3.5 Dealing with innovation

In dealing with innovation, most teachers recognised that it is not a question *if* they will embrace novel ways of working with students, but it is rather a matter of *when* this will happen. Teachers, as well as principals, interviewed for this study all agreed that a change in the way schools are working is urgently needed, yet some were slightly worried about the techniques to do it, as this teacher noted: "Teachers are a bit cautious to do stuff because they don't want to fail" (Teacher 3, School 1). The notion of unknown outcome of non-routinised practice creates a fear among teachers because the failure in student learning connects to the failure of students passing the national exams which consist in highly routinised knowledge base. This was well explained in this caption: "it is the pressure, the pressure of the exams, the rankings" and "we want to believe that our students will be confident when they take the exams, that we will do a good job in preparing them" (Teacher 10, School 4). That is why some of the PPIP schools have been changing the way yearly evaluation is done, transforming it from formative to summative. Additionally, while the leadership understands that failure might be helpful for learning, unsuccessful implementation of intended innovation is rather something they would try to avoid, as this school leader notes: "if they [teachers] fail, it is my failure so I don't want them to fail" (Principal, School 1). While exam related fears and failure to "cover the content" are realistic concerns, they do not always stand in the way, as this teacher explains: "we have content and exams, they are present in our lives obviously, but we try to also teach them [students] for life, prepare them for life, for the social and professional world out there" (Teacher 12, School 4). This mixture of fear and purpose in dealing with innovative practices is a strong source of reasonable worry and pride that was well recognised among Portuguese interviewees.

Another reported hardship is adapting to a specific approach, as this teacher notes:

> "Adapting to project work was the hardest. Convincing teacher that learners are capable of learning for themselves is a complicated task, but at the moment almost everyone knows it is possible. It takes a great capacity for adaptation and improvisation on the part of the teacher to put the level 1 [of project cycle] into practice in order to meet the requirements imposed by the national curriculum" (Teacher 7, School 3).

Teachers did note that working with a different approach has changed the ways they think of their profession and of their role, and most of this change was also connected to the notion of controlling not only the educational processes but also the learning too: "Usually we like to control. Teacher needs to control. There is a teacher of philosophy and she went to the students

to the stage [during D-Day], and I said no! Don't go to the stage. I didn't like that she couldn't let go and went to the stage. Controlling all!" (Teacher 12, School 4). Additionally, teachers do realise and admit that, as many other aspects of schooling, on average, change in teacher behaviour is very slow.

Another aspect of change comes with the content and professional pedagogic skills when confronted with the abolishment of school books. This allows for expanding thinking of other resources such as smartphones and portable digital devices and invites for tailor-made subject content that the teacher alone, or most often with other colleagues, will devise for the class. Content change definitely gets a different dimension in situations where it is done interdisciplinary, as all these schools show: "Interdisciplinarity requires a permanent articulation and a continuous effort, although some of us already start naturally joining in an interdisciplinary way. Narratives as the guiding thread of learning help this interdisciplinarity always happen in a natural and never as forced way" (Teacher 9, School 3).

Principals and educational experts are convinced that teachers are well capable of deciding what of the subject knowledge is essential for students when they leave the school, as much as they are capable of understanding the diverse ways in which students learn best. Thus, the main issues of teacher practices being rigid and inflexible were partly connected to the regulations and strict historical ways schools have been functioning.

6.3.6. Emotions

A common denominator for all the successful processes in the four schools was the teachers' positive attitude towards the change in their regular daily routine as well as happiness with meaning that it brings. All interviewed teachers had one single thing in common: they believed in and loved the job they do, as these several excerpts show:

> "I love my profession" (Teacher 5, School 2).
>
> "Yes, we love our job. The possibility of working with children and watching them grow and transform into beautiful learning abilities" (Teacher 6, School 2).
>
> "The young people [make me feel satisfied] and when I enjoy what I do and when they improve and feel good, I feel good too" (Teacher 10, School 4).
>
> "We have a feeling that we matter. If you only teach the content you only see knowledge from the other side, if you teach life, you have a completely different feedback" (Teacher 6, School 2).
>
> "Normally, the work week ends with the sense of accomplishment. The feeling that with each passing day I am making an intentional and careful contribution to the

> academic and personal development of my students and that, in fact, I am making a difference in their lives. Working at this school is very gratifying and frankly I do not know if I would ever feel fully fulfilled as a teacher in a conventional school" (Teacher 10, School 3).

Feeling that what is done in their jobs matters and makes difference was identified as a strong driving force for teachers that engage in innovative pedagogical approaches and allocate their private time to work out the new routines. Much of this, as it is seen in the last quote, has to do with the specific school environment that brings the sense of professional accomplishment. Excitement and meaning in education were very important moving forces for teachers and this caption summarises it perfectly:

> "I feel I am learning all the time. I started a year ago and I'm still growing up, changing and learning all the time. These innovations are not static, every day is different. My mind is constantly thinking about new things. Outside the school I'm looking for things with different eyes, every time I go for a walk I pick a different rock or a different leaf, or a skeleton or even plastic at the beach, or I take a picture of the northern lights or the columnar disjunction to show to my classroom. I always try to show different examples, and examples that they can also see daily. I try to sensitize students about the problems that our planet is facing today, tomorrow and in the near future" (Teacher 8, School 3).

An essential factor of it was the teachers' motivation and the feeling of the "need to change", as explored above. The sense of accomplishment and curiosity provokes teachers to explore and create, leading to a higher level of professional learning. And as evident in the previous quote, teachers continuously try to inspire learning and curiosity among their students which requires teachers to become deliberate self-motivated learners.

Furthermore, strong personal links to the school, the working collective and the leadership is a notion that was present in all the school-based interviews. Principals knew exactly how to enhance the feeling of ownership and pride among teachers benefiting on knowing each of their teachers closely, tactically and consciously using the power of enthusiasm for new approaches yet not pushing too far to evoke fear of it. The enhanced relationships with students that bring vital fundamental meaning to the teacher profession in combination with evidence of success in terms of learning and comprehending both the subject and "life", as some have mentioned, is the most powerful resource that innovative schools have tapped in.

6.3.7 Mind change

The strong presence of the vital feeling to change has been the most important definite element in teachers' narratives that drove all other working structures, including teacher collaboration and autodidacticism. It is well captured in this quotation: "to want, to feel like doing it [the

innovative approach] and to believe. It is only innovative if the people in the process of it are available and willing to do so" (Teacher 9, School 3).

The reactions to the innovation usually come with surprises and difficulties, but eventually, most of the teachers do report on positive changes and satisfaction that emerge from engaging with innovative approaches. The most important change that teachers did report on was the so-called "mind change" – a phenomenon in which the new practice transforms how teachers used to look at their work, perceive students, content and their colleagues, school at large, and even how they see education and its aims. When talking about the students, some of the emerged ideas were that an individualised approach is indeed much better for student learning: "we teachers have to learn that students are different, here I don't have a class I have 28 individuals and I have to know them" (Teacher 10, School 4). Along this, the teachers also mentioned how the innovative approaches pushed them to understand better how students learn more efficiently, and how changing small classroom behaviours enhances learning. For instance, allowing students to talk to each other while working on individual assignments or permitting students to listen to music on headphones while working on concentrated tasks as for instance calculus or arithmetic. These might seem insignificant, but they do change the dynamics of ownership of learning process as well as enhances the trust between teachers and students. And more importantly, they impact the teachers as they engage in a level of transformative learning. The following caption describes it very well:

> "The practices and methodologies of the school have led me to profoundly change the way I work. The reflective process we develop in students is also put in practice in the daily work of each teacher. We are invited, on a regular basis to question, to reflect, to debate our practice and this leads us to finding new strategies, new solutions, to be creative and to think that we are always capable of doing things even better. It is a work that appeals to creativity immensely and does not let us fall into the routine" (Teacher 8, School 3).

The exposure to innovative methods, as well as to continuous collegial discussion around educational practice at an elevated level, stimulates teachers to learn about their profession and change their profession. Yet, teachers do note that it does not come easily and that "it takes a great capacity for adaptation and improvisation on the part of the teacher who needs to be supported by a deep knowledge of its expertise" (Teacher 9, School 3).

The notions of change as well as the idea of teachers' mind change are the driving forces for taking up innovations and "new" or "additional" roles. "We need to change" (Teacher 2, School

1) and by this the duties and preparation to this change becomes more acceptable even if it takes time from their personal lives. In fact, through this element of mind change, teachers see their work through enhanced meaning which when connected to their learning provides a base for developing professional identity at a higher level.

6.3.8 Key factor that influences teacher learning: Leadership

Possibly the most important common element of schools functioning as innovative learning environments was connected with the model of leadership. While other factors might have varied, all school leaders presented a strong and stable idea of their institutions as successfully functioning schools, if not innovative per se.

Common traits among these school principals included a clear and well-elaborated idea of where the school is heading and how education should be envisioned in both short-term and long-term. Furthermore, the principals presented a clear understanding of learning, as a process that happens among students, and as a process connected to adults, ipso factum the workplace learning of teachers. This included a high level of behavioural science and workplace management comprehension, as this caption clearly presents:

> "I work with the model of open doors. It is important to talk to teachers and to students directly, and also to have a direct relationship with families, they are essential for the academic success. And many times, when I say talk, I actually mean listen. Just have time to allow others to say out what they need and you just listen. It is demanding but it is important" (Principal, School 1).

This significance of relationships within the working community was repeatedly evident in all the visited schools. In fact, one principal argued that in order for the work to be successful in the school 80% is based in relationships and 20% is everything else, noting that "relationships are the key for everything. Everyone is different, so you need to find a different response to individual teachers and also students. It takes a lot of patience" (Principal, School 2). Another similar notion came from another principal saying:

> "Teacher training is like educating children, it needs a lot of understanding that not everyone thinks the same. Differentiated approach is what is needed, because teachers in schools are formed by traditions [traditional approach] without creativity, with no sense of criticism and the crucial function of leadership is to create space for teachers to talk to each other, experiment and see different ways of doing stuff" (Principal, School 3).

As it is evident in this section, working with teachers is essentially developing differentiated learning relationships and they demand a lot of work, patience and determination. In the words

of one principal, small things make large differences: “Sometimes it is the small things that can help a lot. Something easy, like a phone call when they worry or when they are down. It is little things, like a quick lunch and a conversation. These little things with teachers” (Principal, School 2). In addition to this, a notion that was visible in all the examples, and was explicitly explained by one of the interviewed principals was the fact that the leadership is not steering the school behind a closed cabin. It was crucial for principals to be present in the life of the school, in the corridors and among teachers, sometimes even engaging in teaching with them or solving student problems regardless of how minor they seemed. Seeing the principal as “primus inter pares” (Latin for “the first among equals”) carries a strong message among the teachers who get both a reliable colleague and a role-model when it comes to taking up innovative projects.

Decisions on how to move forward were unsurprisingly shared among the schools’ working communities, even if they would be directed from the principal’s office. Nevertheless, an important feature in changing the ways teachers perceive the decision-making or new developments was the fact that there is strong logic to it. As one principal explained:

> “It is very important for teachers to know why we need to work in one way or another, to be clear that the method is logical because of a specific reason. There are many technologies and methodologies that help change minds and attitudes, and I ask them [teachers] to read and research about pedagogical problems. It is a continuous process of reflection and sharing knowledge through pedagogical ideas, to put old ways into a doubt and figure if they work at all” (Principal, School 3).

The interlink between having a clear strategic vision and engaging on a very personal level with the teachers provides a powerful tool in school functioning, which teachers are well capable to grasp and reflect over: “He [principal] has an idea where to go and the teachers see that it can be possible” (Teacher 2, School 1). This most certainly provides confidence and makes teachers less averse of experimenting and failing. Furthermore, teachers do appreciate the insightfulness of their school leaders. These two focus group conversations give a valuable picture on just how important the principal is:

> Teacher 12: she is a true leader, our principal.
> Teacher 10: to throw us the project, it is very important to organise and to choose the best way. To choose also us there she sees someone that she thinks is good for the project and how to involve the person – it is essential. It is very important.
> Teacher 11: yes it is very important because she knows how we can do the best (Focus group, School 4)

> Teacher 2: no one is as good as him, that is the truth

Teacher 4: he is a political leader and he has in this past knowledge that he uses to lead this big school
Teacher 2: this big ship
Teacher 4: we don't see around these colleagues who is going to be the next one, next year
Teacher 3: we hope he stays. Sometimes he orders but it has to be like that also
Teacher 4: yes
Teacher 3: he has a problem, he always dreams
Teacher 2: he is an optimist
Teacher 3: all these projects we have, we have them for him, all these projects
Teacher 4: it is good for us
(Focus group, School 1)

Both of these excerpts point to the relationship and the passion that the leaders express through their work. Their resilience to persisting problems, as well as conviction and patience in finding the right solutions has most certainly been the strongpoint of the successful school functioning and a reference point for organising schools as learning and developing environments.

6.4 Country overview

Starting from the policy level, it has been noticed that while Portugal has around 50 years of history in supporting experimentation at school level, the novel practices that were proposed, tested, and implemented, left fewer lasting changes on the education system than probably expected. Nevertheless, it is also possible that, exactly due to these trials at the level of policy and in practice, Portugal had managed to devise an education strategy that encompasses a wide spectrum of interconnected policies that each tackles an important segment yet not in an isolated way. In addition to this, the governmental structures in charge of education did insist of a sounder policy change which is also reflecting the most important national and international studies of educational development.

The comprehensiveness of education strategy in Portugal is targeted to educational success, which in turn supports schools to develop functional and sustainable working environments and thus enable aspects important for cultivating elements of teacher learning, such as collaborative work. Furthermore, a very conscious attempt in combining top-down and bottom-up interventions at the state level is, indeed, a precious direction for instigating solutions to educational problems that are often called innovative. National interventions such as PPIP and *Curricular Autonomy and Flexibility* support schools to generate innovations and solutions in two different ways, from small curricular changes to larger radical systemic changes. The valuable exchange of outcomes and examples is also part of these national measures.

Additionally, formal solutions for teacher professional development have moved from individual-based to school-based, which instead of focusing on a single teacher's professional needs, and previously it mainly focused on subject matters, now focuses on more communal professional requirements. This scheme demands schools to investigate their entire educational direction, arguably involving principals to revisit or reinvent school educational strategies together with teachers in order to identify and anticipate the professional needs. Finally, the fact that the professional development training most often takes place at one of the clusters in the region (such as in School 4) enhances the possibility of unintentional teacher exchange and learning, as one of the interviewed teachers noted: "I like to talk with teachers from others schools [when they come for training] and that space is when I can reflect, that is the space for teacher training. It is the perfect place to reflect with your peers, with the colleague from other schools, it is richer" (Teacher 10, School 4).

The wide and comprehensive systemic approach to education and, hence, to teacher learning in Portugal is an important element for nurturing and enhancing quality in the long run. It is rather important to note that Portuguese teachers have relatively high salaries in comparison to other professions and to other countries (Carlo et al., 2015) which is important for public recognition of social value of the profession.

At the level of school, the research provides a wide range of indicators that actively and very consciously support teacher learning. Quite important notion was that the schools' size, affiliation to clusters, level of education provided, or source of funding (private or public), were not indicative of how well the school functions. The smallest school was a first cycle elementary education school in a village that had less than 100 students, while the largest was a school of over 1500 students serving the second and third cycle that was also the central school of the cluster serving about 3000 students in total. Some of the schools and clusters had similar educational provisions in terms of implementing governmental programmes, such as TEIP, PPIP, and *Curricular Autonomy and Flexibility*. Notwithstanding the importance of these programmes, all of the schools had their own specific take on education, in terms of specific programmes, educational goals, and a clear educational strategy. Borrowing of successful practice and implementing it in consideration with the specific social context was a common situation and it mainly informed about both leadership and teachers being familiar with the current successful educational practices in the country and worldwide.

It almost goes without saying that in all these school-based initiatives, elements such as pair-

teaching or working in cross-subject teaching teams were not uncommon. Next to this, in almost all of the schools, the entire school staff was engaged in working towards the educational goals that have been decided usually by having everyone on board. This was well summarised by an education expert who worked closely with some of these schools: "The moments of reflection on what the school should be, like an open forum of reflection and sharing, a debate of the problems and the solutions. People are more engaged and more committed to the things that they together decide to do. Creating moments of sharing reflection, debate, learning with each other. They [successful schools] are creating stronger connections with the teachers" (Education expert interview). While the significance of the school environment was notable for the teachers in this study, it should be emphasised that this environment is basically made of human interactions capable of functioning at a high level of reflection and with lasting commitment to educational processes. Yet, the influence of these innovative learning environment on the work of teachers was described as profound:

> "The practices and methodologies of the school have led me to profoundly change the way I work. The reflective process we develop in students is also a practice of our daily work as teachers. We are invited, regularly, to question, to debate our practice, and this leads to always finding new strategies, and solutions and creativity. To think that we are always capable of doing better. This is a work that appeals to creativity and does not let us fall into routine" (Teacher 8, School 3).

School leadership in all cases had a clear vision, and most importantly this vision was widely supported by the entire school community, thus implementation of educational innovation that might seem like extra work is basically done with a strong purpose and comes naturally integrated in the ways education is perceived in the schools. Principals were identified as wise and capable leaders, that serve also as pedagogical models, and that, most importantly, understand learning and working with people management.

Furthermore, to understand the innovative context of these schools, it is necessary to understand how closely innovation is tied with school change and development. School development is almost exclusively seen as school success in these cases and it almost exclusively comes as a consequence of successful school leadership and energised engagement of teachers. Other factors that make the schools highly functional as innovative learning environments could be sorted in physical spaces and use of spaces, connectivity with the external partners, particularly with parents and industry, and school engagement in projects, both national and international. In a few of the schools the teachers not only participated in national programmes, but they have been actively involved with European teacher exchange

programmes such as eTwining, which made their exchanges richer.

Moving from an organisational perspective to the individual perspective of teacher learning, there are a few clearly observable elements in the Portuguese case. While understanding that their job is demanding, there is a strong sense of purpose associated with what and why teachers engage in more work on average. As it is summarised here: “It is demanding, several things happen at the same time with which we have to know to deal. We have to be able to interconnect the different disciplines and work together” (Teacher 8, School 3). Continuous communication between teaching professionals, especially when these include special roles like tutoring, is inevitable in order to monitor and identify learner’s needs and boost their motivation for learning. Professionals were fully aware of the need to engage with a continuous dialogue. As one of the interviewees noted, the schools need to be made out of “professionals who are motivated, capable of teamwork, scientifically and pedagogically competent and who share the same vision of education” (Teacher 8, School 3). In most of the teacher interviews, self-directed professional development that was related to the particular innovation was not seen as an extra burden predominantly because of the two driving beliefs. The first one, identifiable among all teachers, was a strong conviction that the teaching profession needs to change from being traditional and content centred. Secondly, the change of the profession comes as a “wanted” one, as this caption points out: “I see them [innovations] as a healthy challenge and they fall in line with my expectations as a teacher. They allow me to grow professionally” (Teacher 8, School 3). Both of these are elemental for teacher learning at the individual level as they stimulate motivation and encourage self-exploration and reflection. Without these essential characteristics, other components such as collaboration and knowledge sharing are less if at all meaningful.

7. Discussion

7.1 Introduction

This chapter serves to round up all the collected knowledge from the theoretical and empirical perspectives of this study, generate a discussion, and provide answers to the proposed research questions. As a starting point, the chapter reflects on the analytical framework that was devised through careful consideration of literature and data examined by this study, and which provides a contribution on how the phenomenon of teacher learning is perceived as a result of this investigation. The analytical framework is briefly elaborated and further used as a base for the rest of the discussion chapter. Next to the analytical framework, the chapter offers a brief consideration and discussion about the premises that have been adopted by this research, particularly related to the concept of innovative learning environments. The concept has been reflected but not analysed in depth, therefore it seemed necessary to briefly examine the starting premise which largely influenced data selection procedures. This shortly informs and validates the ways in which environments that served for data collection are, indeed, innovative learning environments.

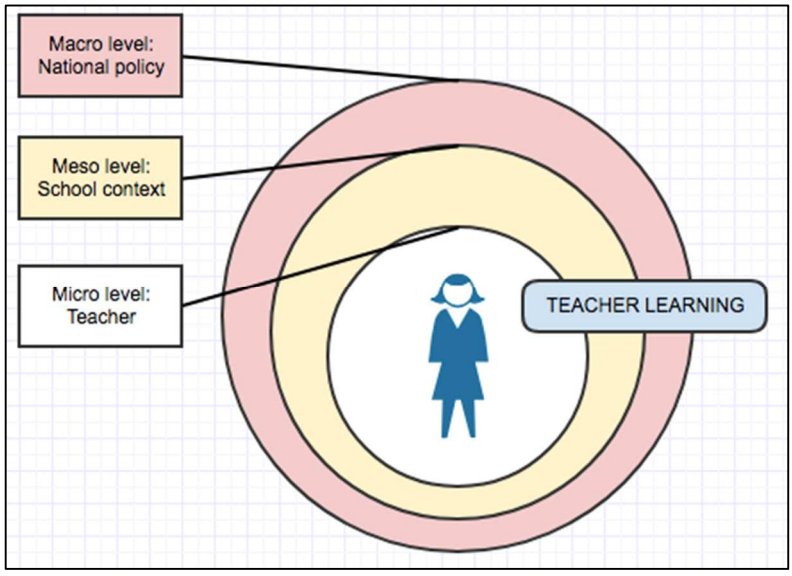
Moving further into discussion, the three layers of the analytical framework are examined. The generated knowledge at the micro level of teacher learning informs the research and provides an answer for the first research question: what are the characteristics of teacher learning in innovative learning environments. This is followed by the second layer where at meso level teacher learning is discussed as embedded in organisational functioning of schools. The sub-chapter takes the assumption based in the analytical framework that teacher learning is heavily influenced by workplace and organisational learning. The discussion in this part offers the answers to the second research question: in what ways are innovative learning environments stimulating and supporting teacher learning. The last layer considers teacher learning as influenced and reinforced by national reforms and developmental interventions, thus provides an answer to the third research question: what elements are necessary for educational reforms and developmental interventions in order to enable teacher learning in innovative learning environments. This sub-chapter departs with an argument that schools and teacher learning are not immune to greater systemic frameworks and as such they do shape the teacher learning landscape. All three sub-chapters offer a comprehensive elaboration of the phenomenon on their respective level through combination of previous theoretical perspectives and empirical conclusions.

The final part of the chapter looks at the lessons learnt, recommendations and implications that the research has generated. The lessons learnt reflect the abundance of ideas and insights that practitioners and schools can take from this study. Recommendations have been designed for the policymaking level, as notions and concepts seen as important for national policy that supports teacher learning and innovation in education. Finally, implications have been devised for future research opportunities that stem from the knowledge collected through this research endeavour.

7.1.1 Analytical framework

This study identifies teacher learning as a transversal phenomenon, embedded in a three-layered unit as a component of the policy level, as a notion at the school community level, and as an individual feature of a single professional. Hence, it is important to understand that teacher learning from the perspective of this research is not only looked through a single unit at a policy or individual level, but also as a composite of all three. Thus, teacher learning as a phenomenon in innovative learning environments in the context of educational reforms and developmental interventions has to be seen as a multi-layered unit of analysis that assumes causal interlinks. The Figure 15 provides a visualisation of this phenomenon.

Figure 15: Analytical framework - Teacher learning as transversal phenomenon



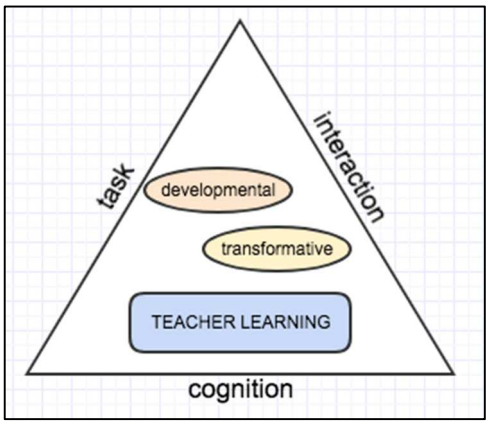
Source: Author

The analytical framework was devised through carefully examining the relevant literature and meticulously studying the data, making connections within both literature and analysis, as well as between them. The continuous work with data over a longer period of time, preparing

academic articles and conference presentations as well as participating in discussions among colleagues all contributed to finetuning of this analytical model.

Additionally, the teacher learning as a transversal phenomenon in environments that are recognised as innovative and learning-intense gains dimensions of developmental and transformative. This is discussed in-depth through the sections at micro, meso and macro level. The aspect of such level of teacher learning is observed from the intersections of tasks, interactions and cognition, as presented in Figure 16.

Figure 16: Teacher learning as developmental and transformative



Source: author

Figure 16 only adds to the complexity of how teacher learning is captured in previous Figure 15, providing additional significance to the main question of unique character and level of teacher learning in specific environments that offer innovative practices. The fact that teacher learning is both developmental (Ellström, 2006) and transformative (Jarvis, 2009; Mezirow, 2009), ultimately offers evidence for distinguishing between teacher learning in innovative learning environments and regular, traditional settings. This does not say that traditional settings cannot cause developmental and transformative learning for teachers nor does it say that all learning in non-routine innovative practice is at a higher level of learning. This scheme rather points out that from what can be concluded in this study, involvement in innovations is more likely to cause teachers to engage in developmental types of learning and more likely to experience learning as a transformative experience. As it is further explored, the interface of task, interaction, and cognition, provide the bedrock for teacher learning at such level.

This understanding of learning is placed within the analytical framework that implies three

layers of analysis, namely the policy level, school level, and individual professional level. Similar to the way that teacher work is embedded in a school organisation and practice, schools are anchored into a national context that bears specific characteristics which may support better options for both school innovation and better opportunities for teacher learning. When all the three factors and layers are in coherence, teacher learning is a more frequent, stable, and targeted occurrence. Furthermore, if the three levels are synchronised in achieving the same educational aims, and if these aims include a very broad vision of educational development, then innovation takes a big role in educational practices and consequently teacher learning tends to become more enhanced.

7.1.2 Reflections related to the innovative learning environments

Even though the study has not targeted directly what the innovative learning environments are, during the interviews and peer discussions this was an important conversation. Debates on the current state of innovation in education are not uncommon in many high-level scholarly works either. The premise that this research takes place in schools that act as innovative learning environments was not questioned initially, thus the school selection was aimed only at those institutions that contain non-traditional forms of teaching, learning, and internal organisation of work. This selection initially followed informed conversations with national experts. However, in order to strengthen the argument that the schools in the study are indeed innovative learning environments, a brief reflection and analysis considering literature and collected data was executed.

Innovative learning environments can be observed from the perspective of seven core principles (OECD, 2017). Schools that act as innovative learning environments have to consider the learner as the core participant of their own learning and have to contain ways to encourage active engagement of learners, and in the context of OECD framework the focus is primarily placed on students. Data from the Hungarian and Portuguese schools show that the main concern of teachers, as well as principals, was related to the students. They reiterated the importance of student active engagement, well-being and happiness, joy of learning, and social development. All interviewees noted that the meaning and satisfaction they feel from their work is intimately connected to their students' development. The teacher's work and learning is, thus, intricately tied with student learning which provides the meaning for the profession. Nevertheless, as this study focuses on teachers as learners, OECD ILE principles are borrowed to look at this dimension as well. Actually, it could be argued that when "better" student

learning is uniquely the focus of school staff, teacher learning becomes more motivated on expanding the scopes of traditional instruction. This was evident in the school cases in both Hungary and Portugal as teachers engaged in learning about students individually, about their specific learning needs, their social background and status, and most importantly understanding what supports the students to learn better. Furthermore, learning in the observed schools was considered beyond mastering tasks and getting grades, as teachers push to break the social stigmas, and develop their students' emotional and social intelligence. This presents a strong link between innovation and teacher learning. Hence, while it was difficult to pinpoint the exact definition of innovation that would suit any context, the study clearly shows that innovations need to be contextually fitted and, therefore, different for each school. Setting the innovation that best fits the school is a heavy, collective endeavour, but one that has great implications on both teacher learning and student learning, and this study reveals the character of these implications on teachers.

7.2 Micro level: teachers as professional lifelong learners

Stemming from literature and data analysis, this section attempts at understanding what are the characteristics of teacher learning in innovative learning environments. In the life of any professional, there are a number of events that emerge and lead to permanent change, which are not due to biological maturing. Such change is labelled as learning and it emerges as a process and a result of interaction between the person and their context (Illeris, 2009; Jarvis, 2006). The more complex the context, the more enhanced learning becomes as a process or an outcome. Furthermore, learning often signifies not only experience and meaning, but also community and identity (Ettiene Wenger, 2009), which certainly adds levels of complexity. Therefore, their learning as doing and as experience is closely intertwined with learning as belonging and as becoming. Hence, for many professionals, teachers included, the professional tasks and professional life enhance not only the practice and experience, but also their identity including their worldviews and the sense of purpose (Ettiene Wenger, 2009). Teachers as professionals are made, developed, and constructed through such a layered complex network of influences. A teacher's first moments of learning about the identity and the meaning of the profession take place in elementary school, where through observations as a pupil one gathers information that helps build a profile of the profession. This is significant; it can be argued that teaching is the profession that is the most closely observable by students through their twelve years of schooling. No other profession is presented in the lives of young people in such close proximity and with such longevity, therefore it is to be expected that as young adults everyone

might have a good idea of what the profession entails, including those that will join it in the future.

Considering this, if the premise is that teacher learning starts through one's experience in elementary school, the characteristics of teacher learning in schools that are innovative can arguably create better conditions for creating positive learning outcomes about the profession. From the study, in both the Hungarian and Portuguese context, teachers teaching in the eight innovative schools undeniably used student-centred methods to engage their pupils and create more meaningful learning outcomes. While these outcomes are not necessarily connected to how the pupils see the teaching profession, they do argue for the meaningfulness of the profession. Furthermore, teachers have expressed their joy in their work and close connection with the students, as well as in many cases they noted that the reason they work in such intensive environments is that they see that the students enjoy it. This does work favourably in terms of unintentional teacher learning at the level of pre-tertiary education, where students can observe or sense the meaning of the profession. In addition to this, teachers have connected that the students experience learning in their classes as both useful and entertaining, which stimulates positive connections between the student and the act of learning (Illeris, 2014). If this is addressed to teacher learning as students' longitudinal observations of the characteristics of the profession, the joy of learning ensures better prospects for lifelong learning. Therefore, addressing how students in their 12 years of compulsory education see teachers and experience their work is very important in teacher learning, as in no other profession are the students so exposed to observing professional learning. Following even the notions of social learning theory, especially the ideas that behaviour is learned from the environment through processes of observation and modelling (Bandura & Adams, 1977), it is important to have teachers that present joy of learning and identity of a lifelong learner in order to have great teachers in the future. This social and informal learning can certainly contain aspects of transformative (Mezirow, 2009), or at least formative in a developmental way (Ellström, 2006), especially when paired with innovation that changes the ways of learning.

In moving to the targeted efforts of teacher learning at the initial teacher education, it is at this stage that the future professionals already have a starting idea of the profession yet are not necessarily informed about the backstage processes of teaching. While this study did not delve into the initial teacher education, the study unavoidably makes connection with it both from the perspective of the data and literature. For instance, it is well known from literature that

workplace learning is difficult to teach at the university setting (Lave & Wenger, 1991; Svensson & Randle, 2006) and importance of providing adequate situational circumstances (Jarvis, 2009) plays an integral role in how professional learning develops. Pesti et al (2018) argue for better provision at the ITE level that incorporate research activities that are connected to the future school practice. These provisions, which are rather rare in comparison to traditional ones (Pesti et al., 2018), support future teachers to embrace active role in learning and engage in research in order to seek for solutions. Many of the interviewees provided a disconnect with their learning at the university level and their in-service learning, pointing out not only to the lack of methodological diversity, but also the lack of providing adequate professional attitudes of continuous learning. Thus, in some ways, for some interviewees it was necessary to unlearn the behaviour of "know-it-all", that sometimes was connected to how they were taught at the initial teacher education level, and embrace both the discomforts and the joys of continuous learning. In some cases, especially through some of the experiences of teachers that taught other in-service teachers, these crude teaching beliefs were difficult to change. In a range of interviews this was referred to as the ability to change the mindset, and even though this was estimated as highly important, it was in extremely rare occasions connected to the initial teacher education. This goes hand-in-hand with developing teachers to become autonomous learners, which also was something that was reportedly missing from the teacher education at the university level. Again, students that come from innovative schools, such as the ones that have been visited throughout this study, have arguably better chances of becoming future autonomous learners as professionals, as autonomy in learning is one of the comprehensive competences, mainly because this is one of the primary learning goals. Furthermore, in those cases where innovative methodology was part of the initial teacher education curriculum, such as in the case of an interviewee in School 1 in Hungary, the further development of the teacher at the in-service level was more advanced and had incorporated elements of continuous learning and professional reflection. It is noteworthy that the young teacher that had studied the innovative pedagogical approach in her initial teacher training was at the time of the interview doing her doctoral work parallel to her job at the school, and she was also a teacher trainer for the specific method. Therefore, it can be argued that when the initial teacher education incorporates the behavioural aspect of openness to continuous learning and development through innovative methodological and institutional approaches, future in-service teachers become more reflective and ambitious professionals. This attitude towards learning has to reflect both the perspective of lifelong learning and everyday situational learning that occurs in the teaching profession.

As discussed, the previous two stages of teacher learning are important because of their potential benefit towards the so-called change of mindset within teaching profession. Yet, moving to the very core of workplace learning, the ability of changing the mindset in spite of the preconceived ideas of what teaching encompasses is at the cornerstone of teacher learning, and possibly teacher transformative and expansive learning, as well, in the case of this study. According to the data, the exposure to the innovative learning environment(s) has a substantial benefit in regard to the mind-change paradigm, as further considered in the next section. Nevertheless, in a professional sense "how people 'do' their knowing" (Laursen, 2006, p. 73) is deeply reflective of their environments, technologies, relations, routines, and changes. In Hungary it is argued that the effects of the national educational reforms and interventions aiming at innovation created a shift of teacher learning moving from initial teacher education to lifelong professional learning (Halász, 2018). In Portugal, in-service education of teachers has moved into the communities of schools, and can be requested as a school-wide professional development demand from accredited training providers. In both cases learning is focused on being a community activity, quite often resting on the basis of collaboration and intensive internal communication. Nevertheless, when connected to an organised effort of learning, even in the most innovative environments, the type of learning would be associated with the productive type I of adaptive learning and productive type II of developmental learning, and in some cases to creative developmental learning (Ellström, 2006). In the prior, the task and the methods are given, while the results are not – and this can be observed in many cases where learning a new methodology is implied. The methodology is usually introduced as a task for a specific social or pedagogical problem, and the method is taught by experts or by school-based teacher trainers and then practiced and perfected by the in-service teacher learners. There is also the latter, productive type II, where the teacher community does not have a particular method offered, but the development of learning a new approach comes as a reaction to a specific social or pedagogical problem which is in this case the task of learning. The results are unknown as much as the method is also foreign. Both of these perspectives were relatively equally dominant among the studied schools, and it is also important to notice that the task, even though "given", is something that was fairly significant for the teacher communities. The task from this point of view can be envisioned as a result of the teacher's reflection on the social and pedagogical issues in her/his practice. This reflection is particularly important, as in the vast majority of interviews the task has been connected to the need to change, to realising that the reality of the modern society demands a different pedagogical approach, and different role and behaviour of teachers. Thus, the learning potential of the task is in service of

complexity, autonomy and competence requirements (Ellström, 2006), and significantly raises the teacher's stimulus for learning as it gives additional meaning to it. In the most elevated level of creative developmental learning where the task is not given, teachers recreate the curriculum from the very scratch and revisit the learning goals of students as well as the ways in which the learning is assessed. This arguably transforms not only the learning related to the task but also learning related to profession and oneself as a professional (Kovacs, 2018). In these situations, the whole framework of education is modified not only the method or pedagogical approach.

All teachers expressed great dedication and love for their profession, therefore, understanding that they can or must achieve better, brings in the moral commitment to learning (Kwo, 2010). This also provides a greater insights into the "knowledge of practice" (Cochran-Smith & Lytle, 1999) which serves teachers to teach well and cannot be taught through conventional linear ways but emerges through practice and through reflection over practice. The spread of such knowledge materialises as a combination of teacher solitary and community reflection, which, according to the data, is an inevitable part of the practice in innovative schools. These learning patters can be even stronger in cases of pair-teaching or co-teaching which was present in some of the cases, as the teachers intensively and intimately exchange their perceptions and analyses of the classroom situations and jointly try to find best solutions in bettering their practice and focusing on student learning.

In all these cases, motivation for learning plays a highly relevant factor as, apart from when learning is organised as a continuous professional development course, there is no extra time and no additional monetary incentives granted for the teacher's individual learning and preparation. Furthermore, next to motivation, the idea of continuous learning and discovery might not come as easily as it has been noted down. There is a commonly accepted social belief that teachers are the experts in learning which can in some cases impede their own personal learning (Bakkenes et al., 2010). And, indeed, interviewees have noticed this in their communities or in other schools, where teaching professionals were not keen to change their practices. This is a very intimate perception of the profession that cannot be forced out, but needs to be mediated at the personal and societal level. Some of the interviewees had strategies to deal with this type of resistance by reminding of the moral commitment of education and of teachers (Kwo, 2010). Likewise, while the motivation of teachers as continuous learners is connected to the moral educational commitment of their profession, it is also related to learning

as finding meaning through experience (Ettiene Wenger, 2009). Learning as a "meaning" or sense-making, and particularly in a professional sense, is intertwined with learning as identity, as practice, and as community, thus all of these elements play a significant role in the case of teacher learning.

Nevertheless, committing to learn and sometimes re-learn a pedagogical method or application of a new technology does position the teacher in the situation of legitimate peripheral participation (Lave & Wenger, 1991). This means that a seasoned experienced teacher might find her/himself on the verge of particular new professional knowledge which pushes her/him to assume a novice behaviour. These are actually the real intricacies of legitimate peripheral participation that Lave and Wenger have tried to explain by warning that social and professional learning is never linear and one-dimensional, but rather entangled in navigating between expertise and novelty. In simpler terms, while some teachers need to learn to operate with newest digital devices, they still remain with a vast pedagogical and subject knowledge in which they are experts. Effectively balancing between these two perspectives and, more importantly, accepting both, is often a viewpoint and a character descriptor of teachers in visited innovative schools. Regardless of their status or years of experience, teachers do admit to being novice in some aspects of their work and needing to individually or collectively find out more about the unknown. In fact, this moment of understanding the dynamics of learning is what makes teachers able to engage with tasks on the productive and creative level of learning.

Learning that is embedded in workplace is connected to all of the functions and activities of that workplace, and this includes performance (Elkjaer & Wahlgren, 2006). Job performance in teaching profession bares a heavy weight because it is connected to the students' learning outcomes and a school's overall performance. Precautions of taking on a new pedagogical approach or learning new skills is closely connected to performance. While learning to handle a new pedagogical skill, teachers may become less effective and this might impact both their performance and self-image. Going through this drop of effectiveness is difficult and emotionally painful (Hammerness et al., 2007). Gaining confidence is an important factor of continuous workplace learning (Eraut, 2000) and this is often related to the teacher's ability to adapt to the uncertainty and trust the effectiveness of learning (Hammerness et al., 2007) that is embedded in the balance and combination between new knowledge and established expertise (Lave & Wenger, 1991). This is when the gold standard for becoming a professional is seen in

term “teachers as adaptive experts” (Hammerness et al., 2007). Optimal teaching is neither routinised nor innovative but a corridor between the two extremes. For most of the interviewees continuous development did not necessarily mean continuous change of practice, but rather stable improvement based on routinisation of novel practice. As paradoxical as it may seem, the innovative approach necessarily needed to become semi-routinised in order to achieve the best of it, and data does show strong evidence of it. On top of this, continuous improvement does not necessarily mean breaking this newly established routine but rather looking into it, being aware, and, as some interviewees said, being “conscious” of the process and the desired outcomes.

Therefore, in conclusion of this part, teacher self-directed learning (Bakkenes et al., 2010) is ultimately an important driver, especially in the innovative schools, and it relates to the teacher’s sense of agency and responsibility. It has been proven time and again that teachers do desire complexity (Day, Sammons, Stobart, Kington, & Gu, 2007) and most of them also aspire for innovation (Huberman, 1993). The data from the Hungarian and Portuguese cases prove this to be true as well. The ways to accomplish this in a safe and strategical way is not only based on individual teacher’s efforts but also in the enabling structures of the organisation of the workplace – the schools.

7.3 Meso level: schools as innovative learning environments

This section continues the discussion on what stimulates teacher learning, elevating it to the level of an organisation, and, in this case, the level of an innovative learning environment. Following the segmented analysis of the layers that play a role in teacher learning based on the empirical and theoretical evidence, this section attempts to discuss in what ways innovative learning environments stimulate and support teacher learning as a developmental, expansive, and transformative learning effort.

The potential impact of innovative schools to teacher pre-service learning was already discussed in the previous section. It was noted that since learning of the teaching profession starts while observing teachers as pupils and students, school-based innovative learning environments can significantly contribute in inspiring a positive and meaningful picture of teaching as a profession, together with developing the basis for lifelong learning by connecting learning with meaning and enjoyment. At the initial teacher education, innovative learning and teaching techniques have a significant impact on those students that receive these non-

traditional university lectures. Unfortunately, there was only one teacher case where the innovative pedagogical approach was taught at the university level. Nevertheless, many interviewees pointed that the way they were taught at the university level was in great disconnect with their current practice in the innovative school. Furthermore, there were no examples where the initial teacher education was itself an innovative learning environment at institutional level, in either of the two national contexts.

Moving to the core of the study and placing the action of learning into the innovative school environment, there is an enormous amount of evidence from the data that indicate the benefit of an innovative workplace. The common nucleus of all the eight schools is that they are in themselves transformative and reactive to how the social and pedagogical problems are dealt with (Kovacs, 2018). These schools have provided beneficial evidence with regards of teacher learning being enabled through structured and forward-thinking organisation that understands its biggest capacity in human relations. This is how a multiple of strong communities of practice (Etienne Wenger, 1999) are able to come into the working space while set of problems and passions are shared and developed.

Collaboration is a common denominator and this is understood by the entire teaching community. Data shows that in many ways it is ingrained in the DNA of the schools and new-coming teachers are largely expected to adapt their behaviour accordingly. This has been seen as inevitable because gathering ideas from others (Bakkenes et al., 2010) has been an important element in spreading examples of good practice. However, collaboration comes with an attitude at the individual and collective level, one that perhaps also stems from the pedagogical approaches usually taken in the classrooms. This attitude provides an understanding that everyone can deliver a valuable contribution and that there is no shame in asking about things one does not know. This is something that has been discovered, nurtured and grown among the colleagues in schools, thus the institutional environment becomes a safe and stimulating space rather than a space of judgement and punishment. In many visited schools this has been explicitly noted as a crucial characteristic that literally opens the doors of teacher practice. Trust that is reached thought this collaborative learning attitude allows for peer-observations to become a learning opportunity, stripping this activity of fear of judgement. For schools where the practice of peer-observations was a long-term experience, the teachers have not even remotely mentioned the fears of opening their classroom doors, while those schools that were new to the practice still admitted that some of their colleagues are averse to open their doors

due to fear of being assessed. Additionally, it is very important that in many of the visited schools classroom peer-observations are part of the teachers' work schedule approved by the leadership. In such a way, learning, and particularly collaborative learning, is being officiated as part of the job, making it more natural and acceptable. These actions also contribute to creating learning organisations (Senge et al., 2012).

The data shows that learning is also successfully stimulated by sharing ownership over the well-being of all students and the development of the school practice. In both Hungary and Portugal, it has been reported that conversations over fitting the best solution, developing a part of curriculum or a part of a class, understanding specific behaviour of a student, or just preparing an interesting piece of learning, was commonly seen as a joint practice. Autonomy to prepare and develop parts of the curriculum encourages full engagement of teachers as professionals and teachers reportedly feel they are considered for their professional knowledge. In other words, education is given back to the teachers as professional pedagogues (Biesta, 2012). Ownership of the school functioning brings also the encouragement that teachers' opinions matter and that, even if they might not have a say in the ways of public policy at national level, they do have a say at the level of school functioning. In schools that nurture value of the collective exchange and generation of knowledge, leadership particularly pointed towards strategies of creating the feeling of ownership among the school staff. Moreover, these schools functioned as informed environments where everyone has a place and where structure of work is consciously planned and timely revised. Teachers are subtly pushed into continuous reflection and this engagement often invites them to devise creative solutions or ideas even when they are not asked or required.

Leadership has been seen as the foundation of a well-functioning school that acts as an innovative learning environment. The principals do not act alone and they too practice an open-door principle. Distributed leadership is a successful strategy for involving staff at different levels and in different aspects (Silins & Mulford, 2002), and the principals were vocal and explicit about this. Additionally, in many cases principals were 'primus inter pares', in the sense of opening the doors of their office, modelling the openminded attitude towards new approaches, and even doing teaching with the other teachers. In such a way, leadership as a competency enables development of individuals and the collective (Day et al., 2009; Schley & Schratz, 2011). Teachers continuously commented on the value of good leadership as well as the value of making connections through intelligible leadership strategy, and this most certainly

supports creating a shared vision (Antonacopoulou, 2006) and setting shared directions (Day et al., 2009). The contributions of these elements to teacher learning are expected as they involve reflection over educational goals, and in innovative schools this includes re-thinking of educational approaches and sometimes consciously seeking new ones.

While most of the school environments had the element of carefully designed structure, there was also evidence that the school leaders strived towards achieving a shared space for emerging relationship (Nonaka & Konno, 1998). Understanding the needs of the teachers and the teaching profession made their work towards establishing mechanisms for teacher engagement and learning more mature and successful. Additionally, understanding the ways the education system in the country functions, and being capable to look beyond the school's doors and borrow successful practice, provided a very good basis for school development. This concurrently works along the capacity and proactiveness of the school to continuously develop and use monitoring and evaluation mechanisms (Day et al., 2009) in terms of the inner-school satisfaction of students, teachers, and parents, as well as in terms of the expectations of the local stakeholders. The relevance of implementing such practices of school development and effectiveness are invaluable for teacher learning (Caena, 2011). At one side, there are teachers involved in teams working on collecting and analysing data which constitutes for a range of different analytical skills and coherent management of teamwork. But, even beyond that, the results generated from such attempts are valuable to re-thinking the issues in society, the student body, and among teachers, thus devising educational and pedagogical solutions that might help. In addition, the results also provide a highly-necessary feedback of their immediate work. Lastly, the school-based monitoring and evaluation practices also provide a support for the distributed leadership to diagnose the stage of the school and finetune the next logical step of development (Day et al., 2009), bringing the possibility of external stakeholders to actively participate in the creation of school-based educational strategy. In this way, teachers become aware of the expectations, but as data shows they also get to know the issues and realities of their students better which helps them reflect on individual students.

Innovative learning environments and teacher learning are essentially bonded to each other. As noted above, innovative schools indeed stimulate and support teacher learning, but it is true the other way around as well. For innovative environments to thrive and endure teacher learning has to be present, and evidence shows not only in its simple reproductive format. Innovative learning environments need an expansive, developmental type of learning that provides

opportunities for changes and improvement. Hence, it is ultimately important to consider such practices at the school level that enhance such types of teacher learning.

7.4 The macro level: policy for teacher learning and innovation in education

This study shows that the idea of educational change and continuous improvement due to the changing social surroundings was very clear at the individual teacher level and the level of school and its leadership. However, the power of intelligible and coherent educational policymaking should not be underestimated either. This section looks at what elements are necessary at the level of educational reforms and developmental interventions in order to enable teacher learning in innovative learning environments.

Both of the case countries have transitioned towards becoming democracies in the last half-century (Halász, 2003; Sousa, 2000). These transitions made further educational changes possible, although the countries have ever since been placed in semi-peripheral position bringing capitalist democratic ideas and consumerist agenda alongside (Amaro, 2000; Tóth et al., 2018). Understanding this from the perspective of educational policymaking is rather important mainly because it creates space for two occurrences; firstly, the educational policy gets largely facilitated by the hegemony of international organisations such as OECD, World Bank, and European Commission (Amaro, 2000), and secondly, the semi-peripheral positioning inherently means that the country is likely to continuously strive towards the centre but never achieve the ambitious goals, including the high quality education (Tóth et al., 2018). These factors can be looked as positive stimuli or as hindrances in policymaking and while Portugal and Hungary have very different historical pathways, at some points of their country's development, it can be argued that a few similar educational solutions have emerged in both, enabling room for development of teaching profession. This most certainly has to do with the fact that neither of the two countries was immune to global trends in education which saw massive shifts in the last four-five decades. By analysing these trends now and then, with the help of literature and provided data, it is possible to distil which national policy interventions support teacher learning through innovation.

It has to be acknowledged that innovation and improvement in education, as well as teacher learning, are multifaceted and highly complex notions that involve policy-level and institution-level provisions, as well as wide and diverse stakeholder participation. This can be identified as a challenge in creating a culture of innovation and continuous teacher learning, as

educational policies that need to tackle this include recruitment, teacher preparation, induction and mentoring, professional learning, teacher feedback and appraisal, and career and leadership development (Darling-Hammond et al., 2017). In other words, national educational policymaking has to be comprehensive and coherent, and educational reforms and developmental interventions should not target separately one single element of a complex and highly-interconnected system. The data has shown that, when devising an experimental approach to generating innovations at the school level, a sustainable solution also includes appropriating support to other important aspects of successful school functioning such as connections between schools and parents, or development of a competence framework for students leaving compulsory education. From the data, it has been also evident that allowing and stimulating local and regional autonomy for creating own occasions of sharing and generating practice has been helpful for spreading innovative educational solutions. Preparing a comprehensive strategy that covers multiple aspects of education, brings awareness of innovation and change to the entire network of interconnected stakeholders, thus allowing for better sharing of information and experiences. This automatically impacts the potential for teacher learning.

Additionally, as noted above, stakeholder involvement is rather critical, and by reflecting this at the policy level a reform or an intervention can create better support for teachers. This follows an understanding of typology of curricular representation at all levels: intended, implemented, and attained (van den Akker et al., 2005), because these levels have different visions when it comes to conceptualising and realising changes. As it was evident from the data in a case when a competence framework for exiting compulsory school is being formulated, having a nationwide consultation and involving diverse stakeholders to the discussion helps partly in creating national awareness of the supposed curricular changes and partly ownership of its processes. This supports teachers in their work and continuous development as firstly they are involved and asked for their professional opinions, and secondly, they can almost instantly rely on the set of partners that were also involved in the process.

In addition, policymaking that involves educational reforms and developmental interventions targeting innovation at the school level does need to be mindful, not only of how the measures will be embraced at the implementation level, but also of how likely they can be adapted to the local setting (McLaughlin, 1990). Centralised, prescriptive solutions that follow a “one-size-

fits-all" perspective do not allow schools to develop at their own pace and in the way necessary for establishing lasting and logical connections with the local community (Day et al., 2009). Moreover, they do not work favourably with schools that already operate as innovative, mainly because for such schools innovation is not a prescribed check-list but rather a continuously developing notion that arises from understanding the school developmental phase, internal capacities, and external expectations. Ultimately, "effective curriculum reform implies growth from existing practice with schools able to react reflectively on their own progress" (OECD/CERI, 1998, p. 14).

Furthermore, lifelong learning has to be a primary principle in all policies related to teacher learning. As noted above, policies related to recruitment and preparation of teachers, as well as those related to induction and mentoring of novice teachers need to be well-designed at the state level (Darling-Hammond et al., 2017). But more so, as it was already reflected in previous sections they need to be understood and well-synchronised with the learning at the initial teacher education institutions and schools that recruit graduates. While there was no data collected from student teachers, many of the in-service teacher and principal interviewees noted the importance of proper preparation of future teachers for the challenges of the teaching profession. With that regard, well-devised policy that supports teacher learning is capable of bridging the gap of inefficient teacher education at the initial stage and preparedness for teacher practice. From the evidence of this study, the point of preparedness for teacher practice should not be placed on reproductive learning but rather on elements that stimulate developmental creative learning and evoke continuous curiosity and work-related research. In some aspects, enhancing the research elements at the stage of initial teacher education (Pesti et al., 2018) can indeed support higher levels of professional learning at the later stage. In addition, policies also have to reflect the necessity of creating innovative learning environments at institutions of higher education, especially those that train new teachers.

At the level of in-service professional development, data provides evidence which is congruent with available literature and previous studies on importance of providing sufficient time for different types of professional development (Darling-Hammond et al., 2017). In most countries there is a prescribed amount of time that teachers need to account for in certified national continuous professional development courses. However, this amount of time rarely includes classroom experimentation, learning, and preparation of classes for innovative pedagogic solutions, it rarely includes collaborative projects, teacher discussions, analyses and reflections

of current pedagogical practices, and discovery of new ones. Looking from the perspective of elements that constitute developmental learning paradigms (Ellström, 2006) closely related to innovative environments, usual nationally certified courses for teachers rarely inspire self-directed, transformative teacher learning. The risk of not having a teacher professional development policy that encourages teachers to take time to tinker (D. H. Hargreaves, 1999), pushes teachers to use their own private time for developing innovative solutions and engaging in collaborative reflections. It also restricts schools to navigate along scarce human resources and to rely on excess energy of both school leadership and ambitious teachers.

Closely related to this are policies related to teacher feedback and evaluation (Darling-Hammond et al., 2017; European Commission, 2018a). In systems where teachers are afraid to make mistakes, practices tend to stick to routines that are proven to be successful for the desired student outcomes. Working in schools that have to some extent created their own value systems and, in some cases, play on the margin of the legal system of their countries, the interviewed teachers have not reported fear or aversion of working with innovation due to the outcomes of it in their evaluation. However, some principals did reflect on the pressures of school ranking and failures in implementing innovations. Furthermore, among all interviewees the tradition of rigid classroom inspection in the past in both countries has left a negative impact on non-innovative teachers. From the opinions that were collected, the policies that control teacher behaviour negatively impact teachers' willingness to peer-observations, sharing practice, and even collaboration on projects. Another rather connected aspect of teacher policy that can heavily influence teacher learning is related to career progression and leadership development (Darling-Hammond et al., 2017). Yet, there were very few occasions when interviewees mentioned this. Formal career progression was not necessarily brought into connection with either their learning patterns, or their learning motivation. One explanation for this could be that in both countries the formal career progression schemes involve high levels of reproductive learning paired with administrative tasks, and they do not open ways for creative or transformative learning, neither do they inspire the elements of becoming adaptive experts. In relevant literature and previous studies, the importance of a well-designed career progression and leadership development system is directly connected with the social status and attractiveness of the profession (European Commission, 2018a; IBF International Consulting, 2013). While this was not reflected in the data collection, except indirectly in one interview with a principal, attractiveness of the profession does matter in terms of the profile of candidates that enter and the attitudes towards the work and the job profile. Arguably, the

higher social regard a profession has, the better professional attitudes of the future and current candidates it might attract. In terms to connecting this to teacher learning, if there is a low social expectation of teaching as profession and schooling as social activity, the impact of what is expected from the teachers might also be low. From evidence in literature and other studies, boosting this profile may result in direct support to teacher expansive learning and in creating more expectations in terms of educational innovation.

Finally, both the empirical part and relevant literature note that in almost all nations, including the two selected for this study, there are continuous educational reforms taking place (Sidorkin & Warford, 2017). While reforms and national educational interventions serve to improve the system, not all are concerned with supporting learning (Kwo, 2010). Several interviewees did mention that the turnover of different measures is rather high and that in their careers they have seen reforms that have promised a lot but did not deliver much. Moreover, they noted that many of these have not been evaluated in a way that they, as teachers, could understand what worked and what needed improvement. This indicates that there is a problem in policymaking in terms of how the outcomes of previous reforms and innovative interventions are measured and how the results are used and distributed among the practitioners, who not only have implemented the measure but have also remained without feedback of the outcomes of their work. Yet, in the current system there are notions of such practice being broken in one way or another. In Portugal, the two recent national innovative interventions work with the idea of generating and simultaneously spreading innovative solutions and practices among the participating schools. These are organised by the ministry and they are frequent enough to help in generating feedback, reflecting on the individual solutions and creating possibilities of borrowing effective practice. In Hungary, this is evident in a bottom-up initiative related to the Complex Instruction Programme, that spread as a method, and currently there are regional and national gatherings of schools that use the method. These are the places where they can share concerns and examples of effective practice, as well as receive feedback and support for further work. As such they create space for interactions and communities of practice, enhancing both the opportunities and intensity of the teachers' learning experience.

7.5 Lessons, Recommendations and Implications

7.5.1 Lessons for practitioners, teachers and principals

There is a number of lessons that this study has brought when it comes to professional work of teachers at the individual and at the school level. If there was an overarching title for these

lessons, it would be something close to the idea that there is a moral duty that professionals in schools need to acknowledge and this moral duty is connected to providing the best possible education for the next generation of world citizens. It has been shown through evidence from data and literature that there is no force or excuse that can stop a teacher and a school to work at the very best level of educational provision. Teachers are not halted by lack of time, by lack of funding, nor they fear to try something new if the old ways do not work. Teacher learning is, thus, connected to awareness rising of the necessity for change from old ways to novel ones. Educational innovation plays an enormous role as it helps in providing a different view on practice, social issue or organisational trait.

Nevertheless, the study also provides ample evidence that self-directed lifelong learning has to be seen as part of the teaching profession at individual and school level. Self-directed learning and innovation are tied in the same knot; while autodidacts are more likely to find out new innovative ways to improve their practice, innovative approaches provide ample ideas to further professional learning. The power of being a lifelong learner in the teaching profession also serves in providing students with learning models, as students see in their teachers that they are continuously curious and ambitious in finding out more about the world around them. An important message goes also to the institutions of higher education providing teacher learning, as without engaged teacher educators, new generations of student teachers lose on seeing models of quality practice. Higher education institutions do need to take a better position in stimulating curiosity, creativity, and innovation among the student teachers.

The study shows that there are some schools and teacher communities that prefer one innovative approach to another, and there are also those that are more flexible and keener on borrowing different practices and adding on to the existing mixed approaches. Nevertheless, what all agree is that status quo needs to be questioned and teaching needs to be adequate to the needs of the students, the classroom, and the school. There is an agreement of teachers being conscious professionals that understand the students and the ways they learn best, understand the reasons why an approach and content is employed, and actively analyse and seek for new solutions where needed. The study remarks that teachers who are engaged in such a way can certainly find an abundance of resources and are eager to search for resources themselves. In addition, the teacher community is a resource in itself that has been identified as essential. The power of working together, sharing issues and solutions, supports teachers in a multitude of ways, including emotionally. The active knowledge-oriented teacher community

is at the core of effective schools and the power of such a community has been often referred to in this study.

Yet, this study also noted that the school, as an organisation that serves learning, needs to become a learning organisation. Lessons that this research brings forth are abundant with evidence on how much school organisation and strategic leadership means in providing support to innovation, high levels of teacher learning and, most importantly, student learning. Schools that choose well-thought-out approaches to student learning inspire joy in learning among both students and teachers, integrating it into lifelong learning as a pleasurable activity. They also seem to achieve better results in terms of satisfaction of all stakeholders and better student outcomes. Evidence from this study strongly suggest that school leadership matters a lot. It is not a particular style of leadership that has been found determinant but rather the scope of leaders' capabilities to:

1. Understand learning as it emerges for both students and teachers
2. Understand the school system, educational policy and laws
3. Have an idea of where the school is at the moment and where it is heading, and have this vision clear and shared among all stakeholders
4. Understand how a teacher community functions, what drives and motivates teachers.

The relational aspect of leadership and the teacher community is indeed a factor that emerges from the study, next to the joint idea of how the school is structured and how it is reaching the commonly decided educational goals. Reminding the teacher community to continuously reflect on the most important aspects of their practice, and allowing space for such activities, has been proven to bring effectiveness in how school is operating. The classes become more coherent with teachers' behaviour and, more importantly, with the external world.

The important aspect of the leadership's knowledge of the national education laws and opportunities, as well as of possibilities and aspects of school development, contributes to the notion of "no-excuse" for development. Some of the evidence in this study points out to the hardships that schools needed to go through, yet the leadership had a persistent vision and knowledge of legal boundaries, which indeed supported the successful development of school, specific innovations, and the creation of stronger teacher learning communities. Furthermore, the study does provide confirmation that strategic and well-rounded school development impacts teacher transformative and developmental learning, as teachers get engaged in diverse

knowledge-intensive tasks every week.

Finally, an important lesson from this study points out to invaluable use of data and the potential external collaborations. The evidence indicates that schools do need to consider collection and analysis of data important for their functioning because of the highly interconnected nature of todays' social realities. Information is the key and as such it can open valuable doors to collaborations and various contributions. There is a variety of options in establishing these external information corridors, yet regardless of their nature they always bring in the potential of teachers gaining greater awareness of the purpose and the outcome of their professional engagement. External collaborations in terms of visiting other schools and benefiting from practice-borrowing is another such valuable corridor for teacher learning. The evidence shows that the school's capability of borrowing and sharing effective classroom and school organisational practice registers for a higher teachers' and leaders' awareness of their own development needs and potentials.

7.5.2 Recommendations for policymaking

Due to its nature and scope, this study has managed to devise a set of policy recommendations that aim at both teacher learning and support educational innovation.

1. Well-informed, jointly agreed, comprehensive educational policy

   The obligation of national educational policymaking is to ensure that all possible resources are provided in order to have an effective educational system. It has been reiterated through this, as well as through previous studies, that educational policy based on a coherent and comprehensive set of measures can reach far better results than those that provide isolated educational reforms and actions. There is a strong interconnectedness of multiple aspects in the schooling system, which cannot be dealt with alone. Such is, for instance, the connection of the student educational outcome with the level of parents' educational attainment, or the connection between the teacher national appraisal system with both student national outcomes and with the teachers' risk-aversion. Thus, it is important that the national educational strategy is highly aware of the wide network of factors involving school level education and can address them in a proper and comprehensive way. An important addition to this is stakeholder involvement and ownership of educational policy provisions. Evidence points out that autocratic top-down educational orders rarely have a high impact in democratic national systems. The base of the educational strategy in a democracy is indeed set in a

democratic action which, thus, involves information sharing and a common consensus with all parties, especially the stakeholders that are at the heart of educational practice. Such efforts of synchronising different ideas of educational provisions and its success brings the national educational agenda to the same quality found in those schools that have effective strategies and collective ambition in fulfilling the joint educational goals. Finally, involving teachers as actors in developing educational policy supports diversifying their work which, as elaborated in this study, offers possibilities for expansive and creative learning. The tasks that are different and outside of teachers' regular routine, yet intensely connected with their profession, substantially helps in high level of reflection, and knowledge sharing and generating. Provided that there is time directly allocated for such tasks, teachers' participation in creating a comprehensive policy can be seen as a rich experience that supports developmental learning.

2. Policy towards teacher profession and attractive career development

   The primary task of any national policymaking is to provide an explicit statement of national intentions. In reflection to the core questions of this study, it is of utmost importance to formulate a stimulating policy that is oriented to various aspects of teacher learning. Notwithstanding its importance, such individual measure cannot come in isolation from the other important aspects of effective educational policy, as suggested in the first point. However, looking further into the characteristics of educational strategy that supports teacher learning, there are a number of components that this study brings forth as possible recommendations.

   Perhaps one of the first is the fact that setting a policy towards teacher learning should not necessarily dictate and control teacher learning through CPD, but rather support activities that enable higher notions of expansive learning. This is not to say that there should not be state-driven possibilities for CPD, but rather that next to a diverse CPD offer there should be a spectrum of such laws and policies that encourage self-directed learning as well. Not surprisingly, educational innovation plays a strong role in this, as it has been concluded that there is a convincing robust connection between innovation and teacher learning. Thus, policy supporting teacher learning inevitably includes elements that allow schools to install and practice different kinds of innovations. The value of policy that elevates the teachers' job and places it in an exciting and innovative school environment also triggers the necessary and slow improvement of teacher professional social status. A national policy that is determined to create a strong teacher

profession does need to stimulate autonomy and continuous professional development, as well as the public perceptions of the profession. An option of devising a more diverse career development pathway for teachers, which includes options of principalship, academic research, and even state official positions, as it is case in some high performing countries such as Singapore, are the way to attract insightful and ambitious new teachers. In addition, education needs to be well-resourced, which largely includes funding. Providing priority funding to education and, importantly, to schools, creates an essential message that quality education does matter. Therefore, setting funding opportunities and remunerating teachers for what they are worth in the society is an important move in national policymaking.

Finally, an evident policy recommendation that stems from data and literature in this study points to the need of a teacher policy that is not overburdening. It has been reiterated that teachers need time to prepare, collaborate, and share their innovative practice, and this is even more essential in schools that act as learning environments. Time is also essential for the teachers' greater engagement in evaluating her/his own practice, as well as participating in school-wide teams that execute different data analyses and project development. Thus, a strong policy recommendation does involve lessening the bureaucratic burden and providing more autonomy and time for tasks that encourage self-directed learning.

3. Measures that stimulate knowledge sharing and knowledge development

   Knowledge creation and diffusion has been identified as one of the important points in this study and, in many cases, schools do take their own initiatives to open the doors, as well as to actively seek for examples in other schools. Nevertheless, a comprehensive national policy should have this element strongly anchored and supported. There are multiple ways to provide this at the national level starting from providing school level conferences where specific innovations can be observed and discussed, across providing favourable options for teachers to travel in country and abroad to learn about novel pedagogical approaches, engaging principals and their leadership teams to examine different successful practices, and advocating for better school-university, school-community, and school-industry collaborations. This recommendation provides a good understanding of how comprehensive national educational policymaking needs to be and, particularly in the last point, there are multiple stakeholders that such collaborative state measures should address. Thus, it is up to policymakers to find ways

through a number of measures to create awareness among the stakeholder of the need to build partnerships for high-quality education.

7.5.3 Implications for research

This study aimed at uncovering important features of teacher learning in innovative environments and this was achieved to the targeted extent. Yet, the study also provides ample new openings for further academic consideration.

The study greatly contributes to the necessity of gaining a deeper qualitative understanding of the unique specificities of teacher learning when it is affected by innovative school practice. While the scope of this research has been Hungary and Portugal, investigating this phenomenon in other countries would substantially add to better understanding of different contextual realities and similarities. It would be particularly important to include countries that are not the "common suspects" for educational innovation, such as Finland, the Netherlands, and Singapore. Furthermore, where possible, strong qualitative study of teacher learning should be joint by a wider ranged quantitative research that brings valuable extensive overview and maps out the necessary correlations.

In addition, researching the subsequent components that contribute to teacher expansive and transformative learning is an important implication stemming from the results of this study. This includes gaining better understanding of:

- Comparative study between teacher learning in innovative and traditional environments
- Individual motivational factors among teachers for expansive learning
- Leadership for better teacher and student learning
- Successful school-university collaboration that results in developmental and transformative teacher learning
- Successful school-community collaboration that results in developmental and transformative teacher learning
- Better understanding school networks and how they support teacher learning
- Student outcomes as a result of innovative teaching and learning

Finally, researching innovative practice across two or more national context provides an invaluable opportunity for exchange of knowledge. In service of bridging the gap between

research and practice, a similar research conducted with more time and human resources could incorporate elements of an action-based inquiry.

8. Conclusions

"A writer only begins a book. A reader finishes it."
Samuel Johnson

This final conclusion merely serves to remind and stress the main highlights of the study, pointing out the learning outcomes from theoretical and empirical parts, as well as to enhance the value and importance of the research.

The principal element of any study is to ask and answer questions. This dissertation possibly opened more questions than initially intended to answer. Nevertheless, in answering the three initial questions, the research attempted to reflect on the core concepts of teacher learning in innovative learning environments in the context of educational reforms and developmental interventions. The reflections produced many interesting points for discussion, primarily the fact that teacher learning is a transversal phenomenon that can be observed at least from the perspective of three layers. The interconnectedness of these layers remains to be discovered by another research endeavour, yet surely the current study provides evidence that teacher learning is an interconnected space between the teaching professional, school, and policy. Already in the literature section the dissertation points out the complex web of theories that in case of teacher learning come together in order to explain the phenomenon at a comprehensive level. This is made evident through examining learning in adulthood on one side and the necessity to examine workplace learning on the other. Additionally, there is an important element of immediate context as organisational learning is brought into theoretical puzzle-making. These basics are all topped by fundamental theoretical notions of teacher learning as a specific field of academic study, which in a way can be observed from an individual perspective, but also from angles of policy, as well as school leadership and management. This heavily proves the main concluding argument that teacher learning is a complex phenomenon. Hence, in several instances there are theoretical and empirical notions that point out to the need to take teacher learning as comprehensively as imaginable.

An important additional stratum in this research on teacher learning was the context of innovations. Setting teacher learning in innovative learning environments defined the path to exploring the contextual notions more than content of learning through the research, and, in a way, conclusions indeed indicate how the context shapes and influences learning. As the theoretical chapter shows, innovations in schools have been largely perceived with positive connotation, although there is some doubt what innovations actually entail. Both literature and data collected through this study take advantage of the positivist approach to innovation,

defining it rather as novel methods of teaching, learning, and organising in schools as contexts. Hence, innovations have been deemed as new to the specific context and not necessarily as completely original ideas. Furthermore, as it was discussed in some instances through this research, innovations can be also and rather described as methods that support better student learning. This inevitably implies that innovations have to include an element of teacher learning for better student learning, better organisation of learning at a school level, enjoyable and meaningful learning time, and overall comprehensive policy that interlinks factors of better student learning.

While this research gives preference to observing teacher learning as a nested phenomenon, it is indeed possible to observe each layer in an individualised manner as well, and this study has taken advantage of that too. Thus, some of the independent theoretical notions that connect to teacher learning at individual professional level, and at the levels of school community and policy interventions, have been used to explain data and specific occurrences found in the field research. Hence, the notions that teachers continuously learn new elements in their practice with an aim of becoming better professionals were closely tied to the teachers' ability and motivation for self-directed learning. Working through and with innovative methodologies did allow teachers to re-invent themselves in their profession through finding purpose and joy in what they do. This came hand-in-hand with the feeling of success, which comes both with changing the old traditional ways for new interactive ways of student learning, as well as with becoming more experienced and routinised in the method that works well. Thus, the research clearly suggests that when teachers manage to find a solution for their particular classroom situation and have the time to test it and perfect it, they have the feeling of greater achievement and are closer to being adaptive experts able to balance innovation with efficiency.

It has been signified throughout the dissertation that innovation, regardless of its content, has an important impact on teacher learning. However, data has shown that innovations need to be dealt intelligently and with care. Teachers achieve satisfaction from learning from innovations only when they see the purpose and feasibility in the approach. Therefore, schools that embed innovations are in dire need of leadership that is capable of understanding what practice to borrow or install and when. In short, anything new needs to fit the developmental context of the school and leaders need to be sure they can manage it in a way that allows possible emerging learning relationships to strive rather than to only burden the teachers. This research has attempted to be as convincing as possible when exploring the delicate connection between

teacher transformative and developmental learning, and the innovative environment. The ample evidence for this came from the empirical part, although it was already stressed as a theoretical consideration too. Creating learning organisations has to entail trust and collaboration, ownership and transparency of information. Each member of the school community needs to have their place and purpose, and in many cases distributed leadership has made this a viable option in the case study schools. Additionally, continuous reflections concerning the innovative approach, the outcomes it has on students and on teachers, the functioning of the school, and the overall aims of education have been pointed as important conversations that indeed encourage advanced teacher learning in innovative learning environments.

This dissertation has emphasised the significance of context in many instances, and it is important to reiterate that context for teacher learning is not only a school but also a greater national policy perspective. The fact that policy matters for both teacher learning and educational innovations was evident through theory and through the empirical part. As it is known from theory, in cases when teachers do not have enough time to experiment and find appropriate methods, and in cases where they do not feel connected to an innovative measure or have no sense of ownership, teacher learning can become merely repetitive and reproductive, with no means of professional transformation. The analysis points out to the fact that teacher policy needs to find a solid place in a comprehensive educational policy, as it is fairly important to understand the complexity of education from a wide range of angles. For instance, understanding how parents' status can influence student learning and incorporating this into a policy that enables possibilities for teachers to connect with parents as partners can become extremely beneficial for future student learning. Furthermore, collecting thoughts from teachers as skilled and experienced professionals, together with other educational stakeholders, while devising a new policy tool can be helpful in creating ownership over the novel educational provision which might increase the likelihood of it being implemented in the best possible way in classrooms. It has been noted here that when given liberties, teachers do strive to better their profession and involve innovations, thus a national consultation for the purposes of policymaking could also bring in inspiring thinking of teachers who care to improve their everyday practice. However, probably the most important point from the study in relation to policy mechanisms is teacher time; empirical data abundantly shows that teachers need time to experiment and to gain expertise in new routines and innovations. They need time to collaborate with meaningful outcomes and to prepare innovative classes that fit their contexts.

Time is also a very important factor for getting to know students better in order to know what their learning needs are. As for novice teachers, time is also joint by the need to remodel initial teacher education and make it more inclusive, inspiring and innovative. This research has shown that teachers in innovative environment need to invest significantly more time and, even though most of the teachers in this study do not complain about it, this needs to be carefully considered from the policy perspective. The development of schools and sustainability of innovations cannot rely on the teachers' willingness to work more hours than paid or provisioned, thus a major conclusion does suggest more time and trust in teachers from the perspectives of policymaking.

Finally, as mentioned at the beginning of this chapter, several new questions have risen from this study, and next to the main conclusions, this should be noted as highly significant. The ability to point out new avenues of research proves the relevance and the nexus of this study in the field of educational research. As this research journey ends, one does not simply disembark to an idle and certain terrain but rather boards one of many potential new expeditions to further explore the intricacies of teacher learning in innovative learning environments.

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Appendix 1

Interview guide TEACHERS

This interview is part of a doctoral research project that I am conducting as part of the European Doctorate in Teacher Learning (EDiTE). EDiTE is a European project implemented by a consortium of 5 universities and I am one of the researchers working under this scheme. My project is called "Teacher learning in innovative learning environments" and I am closely working with ELTE University in Budapest and University of Lisbon. This said, I am collecting opinions from teachers and principals in innovative schools in both Hungary and Portugal.

Thank you for your time for answering these questions. I have created an interview guide but since this is a semi-structured interview, we can start with some questions and then focus more on those that are relevant to your work. So, in a way this will be a conversation between two of us about your experiences and opinions. Please feel free to answer in your language and if at any point I am not clear in my questions, don't hesitate to ask for clarifications.

The interview usually lasts between 30-45 minutes, and it really depends on how much time you have and how good we feel in talking about this topic. Your answers are all confidential and I will not use any names or other identifying elements. If there are any questions after the interview, please feel free to contact me directly and I will try to answer them.

Work-related questions

1. How would you describe your typical day at work?

2. In your opinion, how is your work in your school different than any previous work in another school, or what you know is happening in other schools? Please give details in examples from your everyday work.

3. What are the difficulties that you encounter in your work at your school? How are these difficulties addressed?

4. How do you keep informed about new methods and techniques in education? And in your opinion how are these new ways integrated in your school?

5. How would you describe the collaboration between you and the other teachers? Could you please give few words on what are the characteristics of this collaboration, how it looks and what are the benefits?

6. In your opinion what is the role of the principal / pedagogical leadership in order for school to be successful? How does this look in your school?

7. What in school organisation is important to successfully introduce and sustain innovation that supports student learning?

Innovation in education in Hungary/Portugal

8. In your opinion how do innovative practices look like? What can be classified as innovation / innovative? Could you give some examples?

9. From the perspective of your work, what do you think are requirements that school need to have in order to innovate?

10. Reflecting on specific innovations in your school how do you deal with these innovations? And how do these innovations reflect to your work as a professional?

11. Do you feel you changed or developed by working with these innovations, and how?

12. At the end of your working day or at the end of the working week, what makes you feel satisfied related to your work?

Appendix 2

Interview guide PRINCIPALS

This interview is part of a doctoral research project that I am conducting as part of the European Doctorate in Teacher Learning (EDiTE). EDiTE is a European project implemented by a consortium of 5 universities and I am one of the researchers working under this scheme. My project is called "Teacher learning in innovative learning environments" and I am closely working with ELTE University in Budapest and University of Lisbon. This said, I am collecting opinions from teachers and principals in innovative schools in both Hungary and Portugal.

Thank you for your time for answering these questions. I have created an interview guide but since this is a semi-structured interview, we can start with some questions and then focus more on those that are relevant to your work. So, in a way this will be a conversation between two of us about your experiences and opinions. Please feel free to answer in your language and if at any point I am not clear in my questions, don't hesitate to ask for clarifications.

The interview usually lasts between 30-45 minutes, and it really depends on how much time you have and how good we feel in talking about this topic. Your answers are all confidential and I will not use any names or other identifying elements. If there are any questions after the interview, please feel free to contact me directly and I will try to answer them.

School and Work-related questions

1. Your school is different than other schools. Can you tell me how did this happen? How did you develop / build the school as it is today?

2. What are the most important aspects of good school functioning and how do they look in your everyday work? If you can give me some examples that would be great!

3. What are the difficulties that you encounter in your work at your school? How are these difficulties addressed?

4. How do you keep informed about new methods and techniques in education? And in your opinion how are these new ways integrated in your school?

5. How would you describe the collaboration between you and the other teachers? Could you please give few words on what are the characteristics of this collaboration, how it looks and what are the benefits?

Innovation in education in Hungary/Portugal

6. In your opinion how do innovative practices look like? What can be classified as innovation / innovative? Could you give some examples? Why are they important?

7. From the perspective of your work, what do you think are requirements that school need to have in order to innovate?

8. Reflecting on specific innovations in your school why do you think they are not widespread to other schools and in the whole education system?

9. Do you feel you changed or developed by working with these innovations, and how?

10. At the end of your working day or at the end of the working week, what makes you feel satisfied related to your work?

Appendix 3

Focus group guide

This conversation is part of a doctoral research project that I am conducting as part of the European Doctorate in Teacher Learning (EDiTE). EDiTE is a European project implemented by a consortium of 5 universities and I am one of the researchers working under this scheme. My project is called "Teacher learning in innovative learning environments" and I am closely working with ELTE University in Budapest and University of Lisbon. This said, I am collecting opinions from teachers and principals in innovative schools in both Hungary and Portugal.

Thank you for your time for coming here and talking to me in this group. I have prepared a few questions and some scenarios, and we can see how it all goes and where the conversation takes us. I would primarily like to focus on those things that are relevant to your work, and in this group, I would like to talk about your experiences and opinions. Please feel free to answer in your language and we can collectively try to translate it. If at any point I am not clear in my questions, don't hesitate to ask for clarifications.

The focus group conversation usually lasts around 60 minutes, and it really depends on how much time you have and how good we feel in talking about this topic. Your answers are all confidential and I will not use any names or other identifying elements. If there are any questions after the interview, please feel free to contact me directly and I will try to answer them.

1. Tell me a little bit about yourself and your work in this school.

2. Your school is different than other schools. Can you tell me how do you see it?

3. And can you tell me a little bit about your everyday routines? What happens when you come to the school and what happens after you leave the school?

4. How do you keep informed about new methods and techniques in education? And in your opinion how are these new ways integrated in your school?

5. How would you describe the collaboration between you and the other teachers?

Possible scenario: let' imagine that I come to this school as your new colleague. And I teach geography. I am shy and I do not like to talk much with people, I openly say I want to mainly do my job – teach geography – and be left alone. I do not seem to have other interests and I do not seem to want to engage in other activities in the school. What do you do?

6. Let's talk about innovative practices and how they look like. What can be classified as innovation / innovative? Could you give some examples? Why are they important?

Possible scenario: Let's imagine that I am a parent of a child that just started going to your school. My child is in 5th grade and I am a bit suspicious about the methods you teach in this school. I am worried that my child is not learning "hard stuff" and only playing and having too much fun. I am a bit angry. What would you do?

7. Could you tell me a bit about your school leader? How do you work with her/him?

8. Could you tell me a bit how do you cope with the requirements you have for fulfilling the formal (state) requirements in your profession?

Possible scenario: Let's imagine that you are called to a meeting at the government level at which you will be developing a new strategy or policy for schools and teachers. You are asked to give any suggestions and you have a freedom to change anything. What would you suggest?

9. Optional: We can go around the table and if you wish answer it in a short word or sentence. Do you think any of the work that you have been doing, the innovations that you have been working on and teamwork you joined – did any of this change the way you work as a professional?

10. Final question, when you finish your work and you go home, what makes you satisfied? What thought or feeling is it that makes you happy about what you do here?